

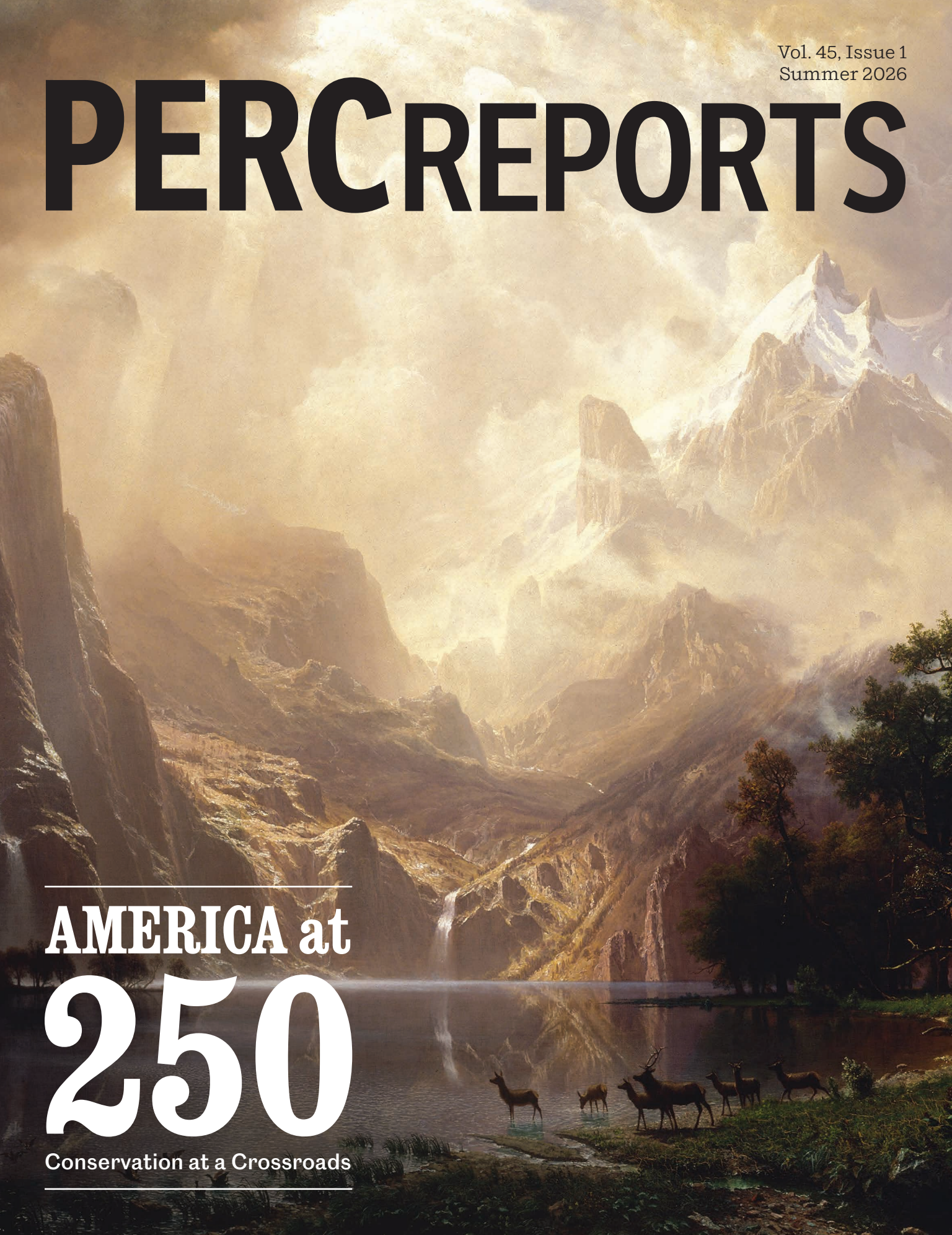
Vol. 45, Issue 1
Summer 2026

PERCREPORTS

AMERICA at

250

Conservation at a Crossroads



At dawn one morning in April, 1772, Ebenezer Mudgett led a group of New Hampshire sawmill operators to their local sheriff's door, tree switches in hand. By the time they'd finished with him, the sheriff and his deputy had been beaten and run out of town, on horses whose ears had been cropped and manes shaved. It may not have been colonial America's finest hour, but the grievance was real.

For decades, the British Crown's Broad Arrow Policy had sent royal surveyors into New England forests to mark the tallest white pines—trees worth considerable sums as ship masts—with three axe cuts. Regardless of whose land they grew on, those marked trees belonged to the Crown. Colonists were forbidden from selling, milling, or profiting from them. By expropriating private resources, the Crown gave colonial landowners every incentive to cut their timber before it reached the prohibited 24-inch diameter. Or, in the case of Mudgett and his neighbors, they outright revolted.

The Broad Arrow Policy wasn't the last time that American regulation turned natural resources into a liability rather than an asset. More recently, landowners who fear that harboring habitat for the endangered red-cockaded woodpecker will trigger federal restrictions have had incentive to clear the land before the bird arrives. A policy intended to protect the woodpecker creates pressure to destroy its habitat instead.

At its best, the American conservation tradition has worked the other way—by aligning the interests of private landowners, ranchers, hunters, and locals generally with the lands, waters, and wildlife they depend on. This issue, published as the nation marks its 250th year, traces that tradition across two centuries and a continent: from its philosophical roots in the founding era, through the recovery of species that have come to symbolize the country, to the market innovations that have quietly conserved millions of acres. What links these stories is a distinctly American approach: not preservation through prohibition, but conservation through private ownership, voluntary participation, and aligned incentives.

Perhaps nothing better illustrates that tradition than the story of New England's forests. By the mid-19th century, Vermont was mostly deforested—hillsides had been cut for farms, fuel, and timber. Eventually, agriculture moved west, marginal farms were abandoned, and the forests came back. Today, more than three-quarters of Vermont is forested, compared to roughly one-quarter at the peak of large-scale clearing. The same broad trend holds for much of the Northeast. The recovery happened largely on private lands—by far the most common ownership category in the East—through ordinary economic decisions: when farming stopped making sense, landowners let fields go, and succession did the rest.

Two hundred fifty years ago, royal surveyors marked the best trees for the king. Today, the trees that grow on those lands belong to whoever holds the deed. The forests are much better for it.



Tate Watkins



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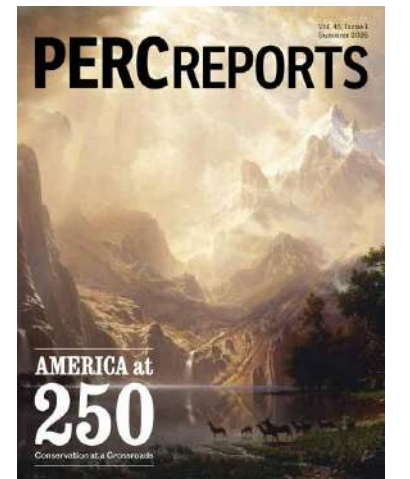
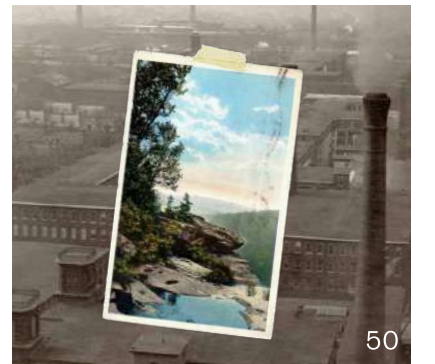
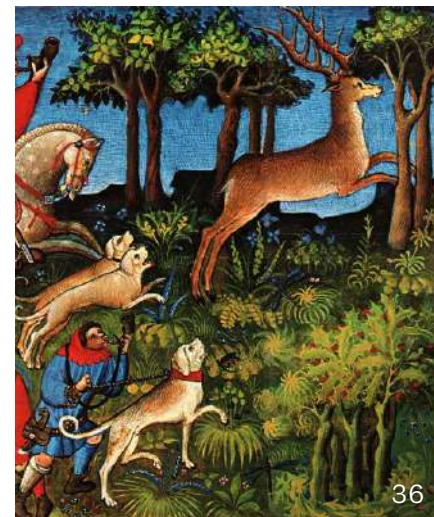
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COVER: Albert Bierstadt, *Among the Sierra Nevada, California, 1868*

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Cashing in on wildlife snaps. In Indonesia’s West Kalimantan province, a program called KehatiKu is turning locals into paid wildlife observers. Run by Borneo Futures, the program pays residents to document wildlife sightings via a smartphone app, with payments ranging from 29 cents for common birds to \$6 for a verified orangutan sighting—enough that dedicated observers can earn the equivalent of a full-time local wage. In just one year, the program enrolled more than 800 observers across nine villages and collected 175,000 records of species from gibbons to flat-headed cats. Several villages have banned hunting to conserve the wildlife that now pays their bills. In Borneo, an orangutan used to mean stolen fruit from local gardens. Now it means a paycheck.

Small landowners, big technology. The Sheridan Community Land Trust is launching a three-year program to bring virtual fencing to small producers in northern Wyoming. High upfront costs have kept the technology out of reach for many, but the land trust is overcoming that obstacle by providing collars, covering internet fees, and splitting subscription costs—cutting the annual per collar price from \$90 to \$45. For ranchers, the payoff is practical: less fencing to build and maintain, improved control over grazing practices, and new ways to protect riparian areas. “That balance between production and stewardship is something our producers already care about,” said Director John Graves. Working with up to 10 producers in the Sheridan area, the group aims to show that cutting-edge tools can work for smaller landowners.



CREDIT: OHTA SEIKI

Robot wolves take on Japanese bears. Amid a record number of bear attacks in Japan, including 13 fatal ones, people are pivoting toward a high-tech solution: robot wolves. Ohta Seiki, a small firm based in Hokkaido, faces unprecedented demand for its \$4,000 robotic “Monster Wolf.” The bionic canine has an infrared sensor that detects and deters wild animals with 50 variations of loud noises—including a wolf howl—glowing red eyes, blue under-lighting, and neck undulations. It’s all powered by a 12-volt car battery, and can be equipped with a solar charging panel, making it optimal for remote locations. Ohta Seiki has plans to expand its offerings with a handheld Monster Wolf for hikers, anglers, and schoolchildren, while leveraging AI cameras to improve its anti-bear tech, showing how markets encourage ingenious responses to human-wildlife conflicts.

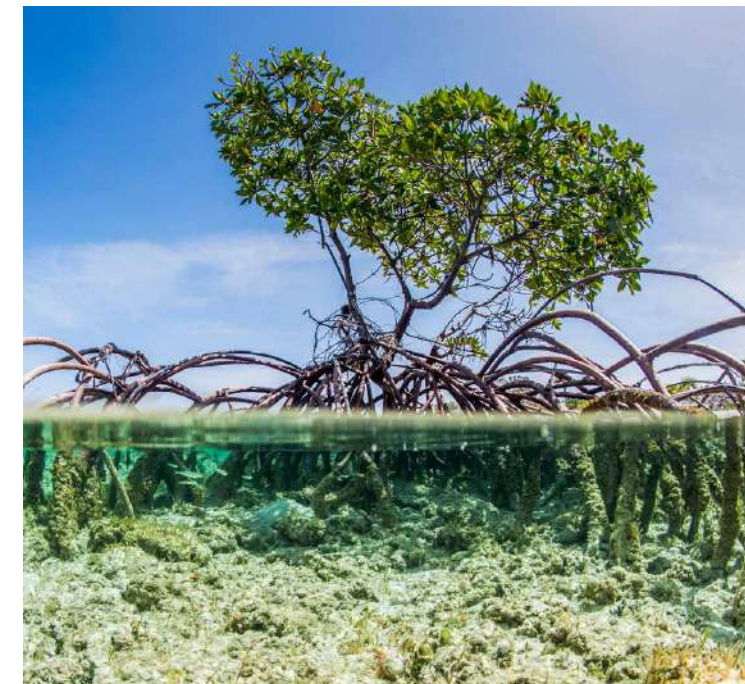
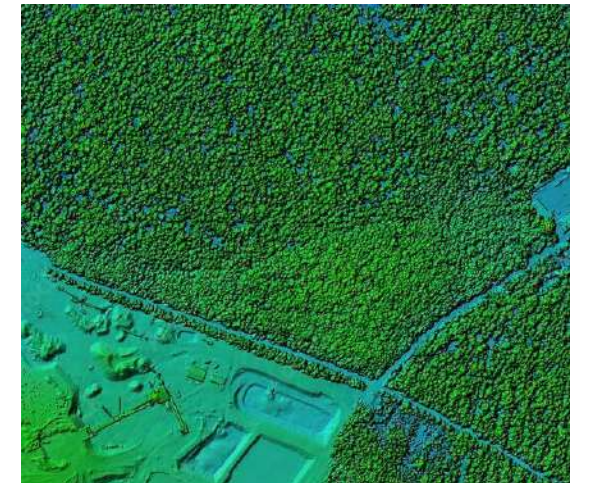


Securing land rights, far out. The Indigenous Wounaan people of Panama have a solution to combat illegal deforestation on their lands: mapping software and forest monitors that pinpoint sites of extralegal land clearing, then submit infractions to Panama’s environmental ministry. Since 2021, the Wounaan have filed eight complaints concerning more than 300 acres of illegal clearcuts. Without mapping technology, the Wounaan had no verifiable evidence to present to authorities. The technology transformed their complaints from word of mouth into documented, precise legal filings to the ministry.



CREDIT: CULLEN HEATER

Mangroves put down roots again. Coastal mangrove forests—one of nature’s most valuable forms of infrastructure—are making an unexpected comeback. In a study published in *Science*, researchers using satellite imaging found that since 2010 the world has been gaining more mangroves than it’s losing. “This is good news for mangroves—there are more of them than we thought, and they are showing their resilience,” Dr. Pete Bunting, one of the authors, told the BBC. The progress marks a reversal after decades of decline driven by coastal development and fish farming. Restoration efforts have helped forests recover and stabilize in Indonesia and Myanmar. For communities on the front lines of intense storms and rising seas, cooperation and firsthand experience have proven the mangroves’ most powerful conservation tools.



AI at the edge of the forest. America’s largest private landowner is betting that artificial intelligence can transform forestry, from seedling to sawmill. Weyerhaeuser, which manages timberlands the size of Indiana, is building a digital twin of its forests using satellite imagery, drone photography, and lidar to catalog the size, species, and spacing of every tree it owns. AI-trained drones now calculate seedling survival rates that once required foresters to count trees by hand on steep terrain. And the company is piloting remotely operated skidders—equipment operators 400 miles away maneuver logging machinery with AI-assisted navigation—with an eye toward complete autonomy across the entire logging process. The goal: double annual profits by 2030, by squeezing efficiency out of 125 years of accumulated forest data. Markets can reward what gets measured, and Weyerhaeuser is trying to measure every tree.



Wildlands Music Festival Names PERC Its Lead Conservation Partner for 2026

Now in its sixth year, Wildlands is one of the country's most distinctive outdoor music festivals that turns a night of live music into lasting protection for wild places. This year, every ticket directly benefits PERC's conservation work in the Greater Yellowstone Ecosystem. Headlined by Carrie Underwood, with performances by LeAnn Rimes, Riley Green, and Kaitlin Butts, the festival pairs world-class talent with an intimate outdoor setting in the mountains of Big Sky, Montana. Produced by Outlaw Partners, the festival's partnership with PERC is a natural fit.

► Tickets are available at [PERC.ORG/WILDLANDS](https://perc.org/wildlands)

PERC and the Ricketts Conservation Foundation Launch the Yellowstone Ecosystem Virtual Fence Collaborative

A new four-year, \$600,000 initiative will bring GPS-collar livestock technology to eight qualifying ranches spanning more than 366,000 acres across Wyoming and Idaho. The initiative will provide continuous monitoring to quantify outcomes and provide support for conservation and working lands in one of the largest intact ecosystems in North America. Projects target everything from elk migration to invasive weed control to stream restoration. "PERC has worked with ranchers, researchers, and technology leaders to leverage the conservation potential of virtual fencing," said Travis Brammer, PERC's director of conservation. "This partnership helps turn that vision into action on the ground in one of the most important ecosystems in the world."



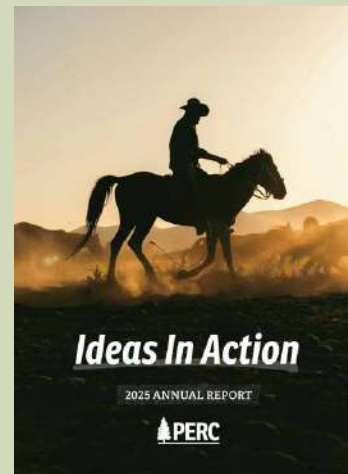
PERC CEO Tells the U.S. Senate to Prioritize Species Recovery

At a hearing before the U.S. Senate Committee on Environment and Public Works, PERC CEO Brian Yablonski delivered a clear message: preventing extinction is not the same as recovering species, and it's time for policy to reflect that reality. More than 50 years after the Endangered Species Act was passed, 99 percent of listed species have avoided extinction—but recovery has remained elusive. Just 3 percent have fully recovered, and the regulatory tools that prevent extinction are often the very ones that hinder recovery. Yablonski outlined a better path forward rooted in incentives, local leadership, and collaboration.



The Future of National Park Stewardship

PERC convened leading national park officials, researchers, partners, and policy experts at Mammoth Hot Springs to discuss the future of America's "best idea." Yellowstone Superintendent Cam Sholly welcomed attendees—a group that included superintendents and officials from parks in Alaska, Olympic, and San Antonio Missions, alongside economists, social scientists, and policy researchers, and representatives from the National Park Foundation and Yellowstone Forever. Participants grappled with the biggest challenges facing national parks: shifting visitation patterns, aging infrastructure, funding constraints, emerging technologies, and the enduring challenge of balancing resource conservation with public enjoyment. With more than 320 million visitors each year, the stakes are high—and PERC is building the bridge between research and practice.



New Annual Report Is Action Packed

In 2025, PERC turned research into results—moving from white papers to policy, and from theory to real-world impact. A PERC-originated proposal became a \$100 international visitor surcharge, now generating new funding for America's most-visited parks. PERC launched the nation's first virtual fence conservation fund, with projects spanning five states. And from Capitol Hill to working lands, PERC advanced incentives that reward landowners, states, and communities for conservation success. Our new annual report, Ideas in Action, tells the story of a year when conservation didn't wait for consensus—it moved.

PERC Publications

This year, PERC has published research and analysis examining some of the most pressing conservation challenges of the day. Reports dove into issues ranging from water markets in Texas and transferable tax credits for conservation easements, to conservation of Maine's old-growth forests and fuel treatments on western national forests. And in our latest publication, PERC researchers lay out approaches for adapting to and coping with hotter, drier summers, whether looking to water markets or managing forests proactively.



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The Invisible Hand of Conservation

The last time I saw Ted Turner, he was seated at the front of a small vessel on Yellowstone Lake, surrounded by family on one of the Turner clan's summer pilgrimages to their most treasured corners of the world. He was battling a disease that had taken his voice, but not his presence. I was there as a family friend, conservation partner, and featured speaker at that evening's family dinner. As we boarded for a tour of the lake that morning, Ted stopped me, took my hand, and gave it a firm squeeze of recognition. No words were needed. It was the gesture of a man who had spent a life communicating through action more than language anyway.

Ted Turner passed away earlier this year. When the history of American conservation is written, there needs to be a chapter dedicated to him—and not primarily for the reasons you might expect. Yes, he almost single-handedly reintroduced the bison at scale to the American West, and his Ted's Montana Grill restaurants brought bison meat to millions

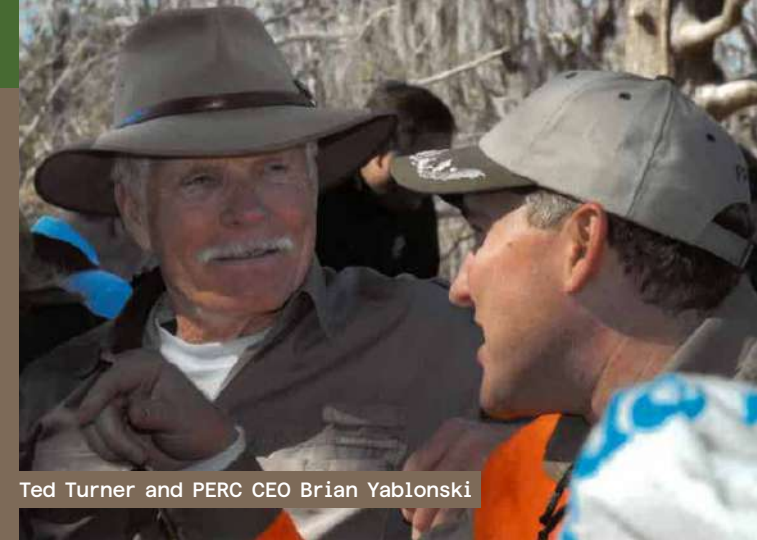
of dinner tables. But Ted's most lasting conservation legacy is something larger. He invented "conservation ranching." Ted proved, through nearly two million acres of his own land and his own capital, that private wealth deployed with ecological intention could restore landscapes at the scale of national parks, on a timeline measured in years rather than decades. The Flying D in Montana. Vermejo in New Mexico. Avalon in North Florida. Many others. Some of the best of the last best places, stewarded not by an agency but by a conservationist with a checkbook and a vision. Today, it is replicated by dozens of other successful entrepreneurs and businessmen conserving tens of millions of acres across the United States. But there will only be one first, and that is Ted Turner.

It is a quintessentially American story. And as we mark 250 years of this republic, it is worth recognizing that it is also a very old one.

The national parks, widely celebrated as "America's best idea," were in fact born of a business deal. In 1871, Jay Cooke—owner of the Northern Pacific Railway—sponsored the addition of a painter named Thomas Moran to the Hayden Expedition into Yellowstone. Cooke paid Moran's way because he understood that stunning images of the West would fill seats on his trains and secure the votes in Congress needed to create something new and special: the world's first national park. As the expedition concluded, it was Cooke's lobbyist who wrote to expedition leader Ferdinand Hayden suggesting that Congress "pass a bill reserving the Great Geyser Basin as a public park forever"—and asked him to include the idea in his official report. Hayden obliged. Congress established Yellowstone in 1872. Preservationists wanted it; the railroad made it happen. Without the quiet commercial maneuvering of a railroad magnate, the park idea might never have blossomed. And blossom it did.

Partnerships between preservationists and the railroads led to the creation of Yosemite, Grand Canyon, and Glacier National Parks, to name a few. None other than the "father of Yosemite National Park," John Muir, concluded: "Even the soulless Southern Pacific R.R. Co., never counted on for anything good, helped nobly in pushing the bill for this park through Congress." Other railroads like the Santa Fe, Great Northern, and Union Pacific got in on the act, developing grand hotels in the western parks and urging the nation to "See America First." It was capitalism in service of conservation, stitched into the founding document of the entire national parks movement.

Fifty years later, a different kind of wealth shaped the parks again. John D. Rockefeller Jr., heir to the Standard Oil fortune, began quietly purchasing land in the Jackson Hole valley of Wyoming beginning in the 1920s through a shell company called the Snake River Land Company. He did this with the encouragement of Yellowstone Superintendent Horace Albright, concealing his identity to prevent land prices from spiking. Over the following decades, Rockefeller transferred tens of thousands of acres to the federal government, land that became the beating heart of Grand Teton National Park. He made similar gifts to help establish Acadia, Great Smoky Mountains, and Shenandoah. The parks we treasure today were not only set aside by acts of Congress—they were partly assembled, acre by acre, by private capital wielded with patience and purpose.



Ted Turner and PERC CEO Brian Yablonski



Ted Turner (right) and his son, Beau, with Brian Yablonski

Not all of conservation's capitalist partners have been billionaires. Some worked for widely recognized conservation organizations we know today: the Smithsonian and the National Zoo. At the time of their founding, both institutions recognized that surplus animal specimens, collected by government expeditions, boundary surveys, the military, and private individuals wanting to contribute to science, could be used as a de facto "currency" to help secure specimens from abroad. As historian Diane Smith wrote, the Smithsonian understood "that many of these duplicate specimens had an inherent value that could be exploited to the institution's advantage." Similarly, in 1890, the founders of the National Zoo requested that the interior secretary task Yellowstone National Park with sending 20 specimens of every animal available in the park. The zoo proposed using these live animals as "cash equivalents to obtain more specimens for public display." While likely intolerable today, back then, the capitalistic use of wildlife built these great institutions.

Other effective conservation groups have their origins in the world of private enterprise and individual initiative too. The nation's first wildlife conservation organization, the Boone and Crockett Club, was founded in 1887 by Theodore Roosevelt, George Bird Grinnell and a handful of wealthy

hunters. As Douglas Brinkley described in *The Wilderness Warrior*, "most of the founders were New York capitalists with deep pockets," though "none were afraid to get mud on his boots." At its inception, the club, capped at 100 members, used its business prestige and influence to lobby for passage of the Forest Reserve Act of 1891 (the predecessor to the National Forest System) and the Yellowstone Protection Act of 1894 (to protect wildlife in the park) as well as the creation of the Bronx Zoo. Today, it continues to be an effective voice for wildlife and habitat protection.

Similarly, in 1937, at the depths of the Dust Bowl, when North American waterfowl populations had plunged to historic lows, a small group of duck hunting philanthropists pooled their resources and founded an organization called Ducks Unlimited. Their mission was simple: habitat conservation. The method was equally simple: raise private money, work with private landowners, and put wetlands back on the landscape. Nearly 90 years later, DU has conserved more than 15 million acres of wetland habitat across North America. Their work demonstrates what organized private conservation can accomplish when it meets landowners where they are, with incentives rather than mandates. Waterfowl populations have risen 56 percent since 1970, even as other bird populations have collapsed. Duck hunters did that.



And then there is the national mammal of the United States – the bison—the animal that, more than any other, embodies both the failure and the redemption of American conservation. Tens of millions reduced to fewer than a thousand by the late 1880s. The comeback is an incredible wildlife recovery story, and it happened first and foremost in private hands—by owners, including former buffalo hunters, who, for reasons commercial and otherwise, chose to invest in an animal that had nearly been exterminated. Today, roughly 90 percent of the nation's bison live in private commercial and entrepreneurial herds. Ted Turner was the most visible of these stewards, but he was one expression of a much broader private ethic. The bison's recovery was not legislated into existence. It was ranched into existence.

The standard telling of American conservation history runs like this: Theodore Roosevelt draws lines on maps, Congress passes laws, and the natural world is saved. That story is true, and it is important. But it is incomplete. Running alongside—and often preceding—the government narrative, at every turn, is another story. It includes railroads and oil heirs and hunters and ranchers who put their own capital behind their conservation convictions. Sometimes they did it for profit, sometimes for passion, and often for both, as Ted Turner did. History can be messy. More so when the uncomfortable relationship between capitalism and conservation does not fit the conventional narrative.

History can be messy. More so when the uncomfortable relationship between capitalism and conservation does not fit the conventional narrative.

Like it or not, capitalism, manifested in many different shapes and sizes, has been the quiet but effective ally of conservation throughout. The American genius for conservation has always been this: harness the power of private incentives alongside public protection. People protect what they value. When they have a stake in the outcome, conservation endures.

As America turns 250, that insight is not a historical curiosity. It is a blueprint. The next great gains in conservation will not come from drawing more lines on more maps. They will come from the same place the first ones did—from individuals, entrepreneurs, and organizations who see in the natural world not a problem to be regulated but an investment worth making. At PERC, it is the work we are proud to carry forward. And if Ted Turner taught us anything, it is that one person with a clear vision and the will to act can move the needle further than a generation of good intentions.



Brian Yablonski is the Chief Executive Officer at PERC.

CREDIT: SMITHSONIAN INSTITUTION



Children gathered around the National Zoological Park's first bison in 1899



Thomas Jefferson: The Lost Founding Father of American Conservation

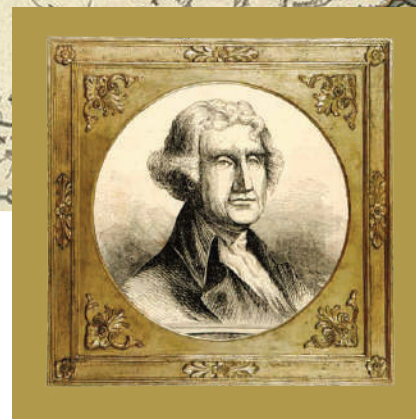
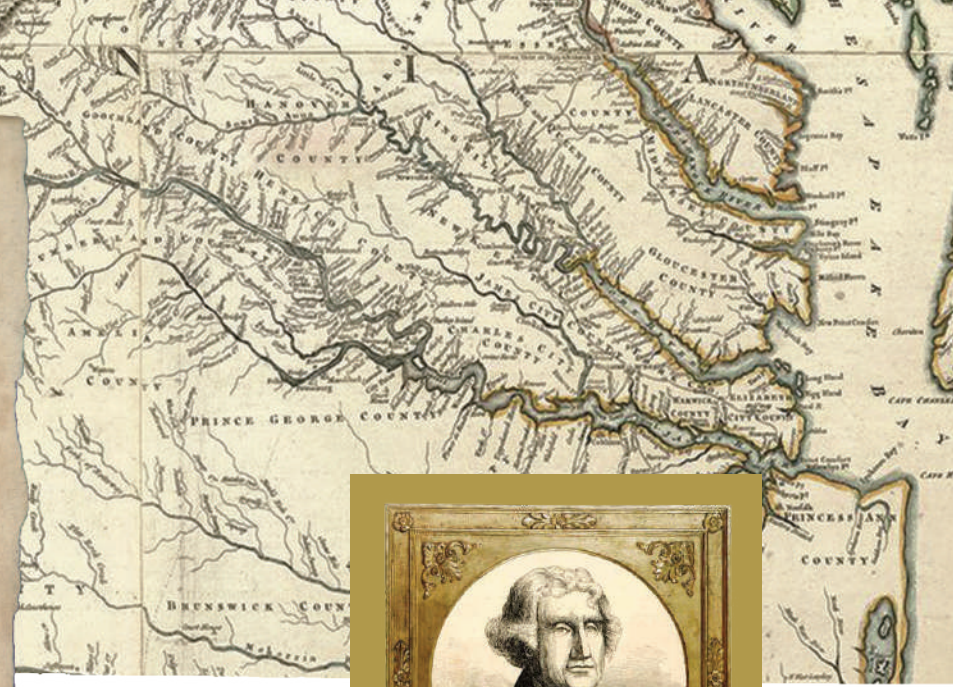
Two years before he authored the Declaration of Independence, Thomas Jefferson set out to conserve Virginia's Natural Bridge—and pioneered a uniquely American model of voluntary stewardship

Two years before he authored the Declaration of Independence, Thomas Jefferson set out on the lifelong project of conserving Virginia's Natural Bridge. Michaëlle Browers has described the effort as “perhaps the first major act of nature preservation in the new republic.” The man who would be Governor of Virginia and President of the United States conserved this natural wonder not through power but through property rights. After purchasing Natural Bridge from his future penpal—King George III—Jefferson was its steward until his death 52 years later.

Despite this prominent early act of conservation and his career cataloguing and championing America's environment to European skeptics, Jefferson is largely absent from the traditional history of American conservation. Under the traditional story, American conservation's genesis is the Progressive Era of the late 19th and early 20th centuries, when federal and state power expanded considerably, including to address environmental concerns. From this era, we get President Theodore Roosevelt, national parks and forests, comprehensive zoning and regulation of private property, and the first generation of regulatory agencies.

Beginning our story here, however, constrains conservation around a political movement and its prejudices. Through the progressive lens, conservation is principally a question of government policy, and private stewardship is taken for granted. The era's principal tools are regulations designed to address pollution, which are applied even to very different challenges, like the rising cost to landowners of providing open space, wildlife habitat, and other environmental benefits.

Two hundred and fifty years ago, Thomas Jefferson asserted as self-evident that we all have natural rights to life, liberty, and the pursuit of happiness and that the government's principal role is to secure these preexisting rights. His actions and writings also suggest a classical liberal model for conservation, one built not on force and faction but on freedom and cooperation. That model reveals private landowners as conservationists involved in the private provision of public goods—and the need for bottom-up, collaborative tools to support these efforts. Jefferson should play a more prominent role in the story of American conservation's past and future.



The Most Sublime of Nature's Works

Before the Grand Canyon, Old Faithful, and Giant Sequoias, two other American natural wonders captured the young nation's—and the world's—attention: Niagara Falls and Virginia's Natural Bridge. Niagara Falls remains iconic, but Natural Bridge has faded in prominence—as has the story of its conservation.

Nestled in the Shenandoah Valley, Natural Bridge is America's largest limestone arch. Rising 215 feet above Cedar Creek, with a span of 90 feet, the arch was likely formed when a sinkhole diverted the creek underground. Monacan legend offers a more dramatic origin story: The bridge formed miraculously as an escape route for a band of Monacans fleeing raiders some 2,000 years ago—giving the feature its indigenous name, *Mohomony*, which translates to “Bridge of God.”

Natural Bridge also has rich connections to our nation's history. Believed to have been first surveyed by a teenage George Washington, the initials “G.W.” can still be seen

carved into the canyon wall beneath the bridge. Thomas Jefferson visited the formation in 1767, and it had a great effect on him. In his *Notes on the State of Virginia*, Jefferson described the bridge as “the most sublime of nature's works,” continuing that “few men have resolution to walk to [the edge], and look over into the abyss.”

You involuntarily fall on your hands and feet, creep to the parapet, and peep over it. Looking down from this height about a minute, gave me a violent head-ache. If the view from the top be painful and intolerable, that from below is delightful in an equal extreme. It is impossible for the emotions, arising from the sublime, to be felt beyond what they are here: so beautiful an arch, so elevated, so light, and springing, as it were up to heaven, the rapture of the spectator is indescribable.

On July 5, 1774, Jefferson became the first owner of the bridge, purchasing it and the surrounding 157 acres from the Crown. Jefferson viewed the land as a financial asset,

constructing a cabin for visitors and operating a saltpeter mine upstream of the bridge. But he also viewed Natural Bridge as something more.

Jefferson promoted the imposing arch as emblematic of America's natural heritage. He featured the bridge in his *Notes on the State of Virginia* as part of his wider effort to defend America's environment and political system to Europeans. Jefferson encouraged statesmen, explorers, and naturalists visiting his home at Monticello to make the hundred-mile trip to the bridge. The log book for his cabin recorded visits from Chief Justice John Marshall; Presidents James Monroe, Andrew Jackson, and Martin Van Buren; and Henry Clay, Sam Houston, and Daniel Boone.

Thanks to Jefferson's promotion, Natural Bridge became a frequent subject of European and American art. The landmark would become so well known that when, in *Moby Dick*, Herman Melville needed to describe a whale breaching, he wrote that “for an instant [the whale's]

whole marbled body formed a high arch, like Virginia's Natural Bridge.”

Jefferson's conservation of Natural Bridge was not always easy. At the end of his presidency, and in serious debt, he described it in a letter as “dead capital in my hands.” He contemplated selling the land, expressing hope that someone else could turn a profit by building facilities that would earn more income from visitors. Ultimately, Jefferson reduced his debt by selling his cherished book collection to the new Library of Congress. Later, he wrote that he had “no idea of selling the land,” explaining that he viewed it “in some degree as a public trust, and would on no consideration permit the bridge to be injured, defaced or masked from the public view.”

Jefferson owned the bridge until his death, and it remained under private ownership and stewardship for 249 years. In 2023, its private owners donated it to Virginia, which had managed the site as a state park since 2016.

A Liberal Model of Conservation

The late free-market environmentalist R.J. Smith has described Jefferson's conservation of Natural Bridge as "of particular interest to proponents of private property rights and the pursuit of happiness." Smith was not alone in connecting Jefferson's conservation to his better known work drafting America's mission statement. Writing in *Environmental Ethics*, Michaëlle Browers has argued that Jefferson "offer[s] an environmental vision" that "represents Enlightenment [and] American ideas about nature."

A key part of that vision was the recognition that properly motivated private landowners can be effective stewards of natural resources. In *Enclosing the Commons*, Mark Sturges recognized in Jefferson's writing an understanding of what we now describe as the tragedy of the commons—the tendency for unowned, open-access resources to be overexploited to the detriment of all. After independence, Jefferson took great interest in the unclaimed western frontier and saw the transfer of those lands to private parties as essential to American democracy, the development of national character, and the land's proper stewardship.



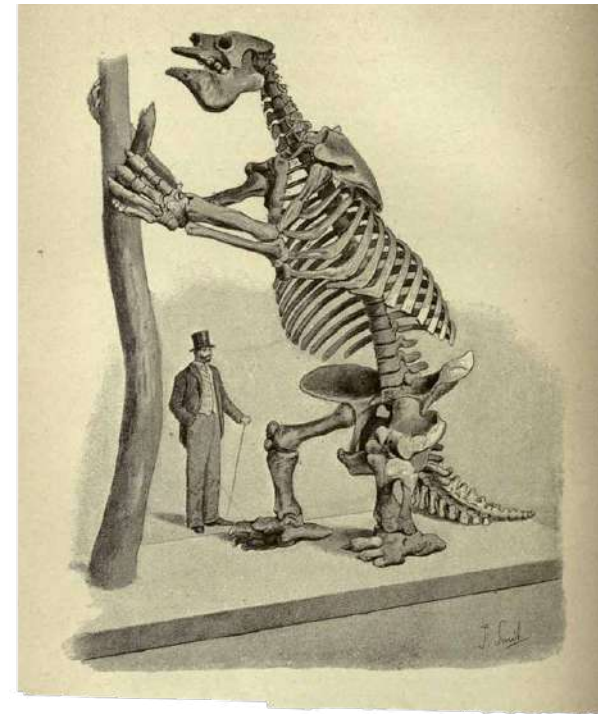
According to Sturges, Jefferson's commitment to private property was based not only on his belief in natural rights but also the positive incentives it creates. In a 1787 letter to the Marquis de Lafayette, Jefferson argued that French lands were in poor health because of inadequate property rights. Limited to short-term leases from the aristocracy, working-class farmers had an incentive to extract as much as they could in the short term, without regard to the future. The English system, under which land was inheritable property, encouraged farmers to invest in their land, knowing that they or their sons would be able to reap the benefits.

Jefferson also saw a role for entrepreneurship. He noted that the ability to profit from visitor interest, through accommodations and other services, encourages the owner to make environmental resources "useful to the owner & the public." Though he referenced Natural Bridge as "in some degree a public trust," it's clear that he meant something different from the modern public trust doctrine—which resists privatization of certain natural resources. He believed landowners should feel a personal duty to posterity—once describing the earth as belonging "in usufruct to the living"—but he cast no aspersions on private ownership or profit from environmental resources.

Indeed, Jefferson doubted the government's ability to manage natural resources. "Were we directed from Washington when to sow, & when to reap," he wrote, "we should soon want bread." Jefferson recognized a role for politics, but one that was principally individualistic and localized. This view was not only motivated by concern about overweening federal power but also by his belief that each person's direct participation in their community was essential to virtue.

By the same logic, Jefferson would see virtue in landowners' active stewardship as well as community collaboration to advance conservation. He would be a critic of the idea that the best means for people to contribute to conservation is by voting in federal elections every two years. Channeling conservation through a remote national government inherently disconnects people from the day-to-day reality of conservation and its challenges—and dulls their capacity for creative problem solving.

Like other Enlightenment figures, Jefferson was fascinated by nature. In 1791, he wrote that natural history "is my passion, [politics] my duty." He put much effort into defending America's environment against European disparagement. Considered to be the father of American paleontology, he collected an extensive array of fossils and bones, including the first fossil of a Pleistocene ground sloth that bears his name.



Considering Jefferson's fascination with the natural environment, it is perhaps unsurprising that he did not think of natural resources purely in economic terms. He also articulated a land ethic. He believed that experience with a place connected one to it. According to Browers, Jefferson expressed "the common-sense view that ... one bestow[s] more care upon what is one's own, but also that direct experience with one's property generates an ethic of care and responsibility." In his *Notes on the State of Virginia*, Jefferson wrote that "land being an object of strong affection would soon acquire stability of property."

Of course, Jefferson's writings from the 1700s also reveal blind spots to modern conservation issues. Believing that property rights arose from mixing one's labor with land, he was skeptical of leaving land idle. In a letter to James

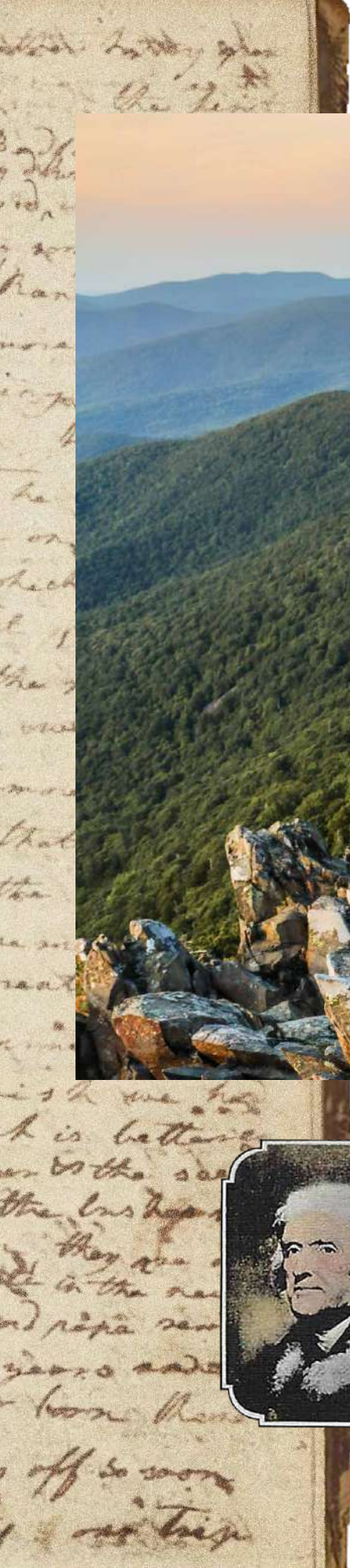
Madison in 1785, for instance, he criticized the existence of game lands in France: "Whenever there are in any country uncultivated lands and unemployed poor, it is clear that the laws of property have been so far extended as to violate natural right." Similar thinking is why many western states long refused to recognize conservation of fish habitat as a beneficial use of water, why some object to the retirement of federal grazing lands for conservation, and why others bemoan the acquisition of large ranches by wealthy, conservation-minded owners.

Nonetheless, it's useful to ponder questions like the one historian Patricia Nelson Limerick poses in her contribution to the volume *Thomas Jefferson and the Changing West: From Conquest to Conservation*: "What ... would Mr. Jefferson make of the spotted owl?" Given his curiosity about nature, she speculates that he "would be very interested in and enthusiastic about the habits and workings of the spotted owl, and equally interested in, and much less enthusiastic about, the strange and unwieldy bureaucratic and judicial systems" that gave us the owl wars of the 1990s. Three decades into that conflict, with the species and the communities that live with it continuing to decline, perhaps there's much in Jefferson that should inform conservation today.



"Conservation will ultimately boil down to rewarding the private landowner who conserves the public interest."

— Aldo Leopold



"Nature intended me for the tranquil pursuits of science, by rendering them my supreme delight."

— Jefferson, 1809

The Liberal Model Endures

Jefferson's conservation of Natural Bridge is more than a historical curiosity. Most conservation today is provided by the heirs to Jefferson's example. Indeed, private landowners across the country provide three-quarters of the nation's freshwater wetlands, maintain habitat for nearly 70 percent of endangered and threatened species, and steward nearly 60 percent of the nation's forests—often voluntarily and without compensation.

Consider Montana's Paradise Valley: For decades, millions of visitors to the north entrance of Yellowstone National Park have been greeted by a 50-mile drive meandering along the banks of the Yellowstone River, where they take in the valley's jagged peaks, open meadows, and abundant wildlife. Few of them will pause to consider the generations of ranching families who have provided this experience to them by conserving the open grasslands that make it possible.

The visitors are, in effect, free-riding on the public benefits those landowners have provided—whether because it was aligned with their economic interests or because of their love for the place they call home. It has been an impressive conservation feat deserving of our gratitude. But, as economic conditions change, the costs of providing environmental goods also change. And Paradise Valley is no exception. Over time, land values have soared, development pressures have increased, and the feasibility of conservation free-riding on agriculture has dissipated.

Too often, the response to such changes has been for the free riders to demand, through regulation or other means, that landowners continue to provide uncompensated environmental benefits forever. Under the Endangered Species Act, for instance, regulators have reacted to the gradual reduction of a species' habitat by imposing costly and burdensome requirements on the landowners conserving the last remaining portions of it. As PERC and others have observed for decades, this recipe for perverse incentives disserves both landowners and species.

But if we recognize the landowner as the modern-day Jefferson—a conservationist involved in the private provision of a public good—this approach seems absurd. If a donor offered to cover part of the cost to build a lighthouse, a classic public good, who would criticize them for not providing more, especially among those

contributing less? The landowner who provides open space, wildlife habitat, and wetlands until the cost grows too much for them is no different.

Understood this way, conservation problems demand entirely different tools than the progressive model's top-down regulatory impositions. Creative entrepreneurs are needed to find novel ways to increase the private benefits that underwrite the provision of environmental goods. And, where revenue can't be increased, locally led, collaborative solutions are needed to reduce the costs that fall on private landowners and close the financial gap. This is what Aldo Leopold meant when he said that conservation will "ultimately boil down to rewarding the private landowner who conserves the public interest." Compared to the cost of public provision of public goods, supporting self-motivated private providers is a steal.

Moving Forward by Looking Back

Fortunately, conservationists may, without realizing it, be moving back in the direction of Jefferson. In Paradise Valley, for instance, conservation groups who were once at arms with ranchers are stepping up to support landowner-led stewardship and reduce ranchers' costs to provide wildlife habitat and other benefits. After a long detour of conservation being viewed exclusively through the lens of politics and control, conservation's lost founding father may yet be found.



Jonathan Wood is vice president of law and policy at PERC.



AMERICA AT 250



Worth the Price of Admission

In 1908, Mount Rainier National Park instituted a \$5 annual permit for automobiles, the first formal user fee in the park system. Previously, like other early national parks, it lacked a clear—let alone sustainable—financial model. Congressional appropriations were sporadic and meager, devoted mainly to road construction or boundary surveys. Within just a few years of Rainier adopting an admission charge, vehicle fees had spread to Crater Lake, Glacier, Yellowstone, Yosemite, and beyond. Parks could reinvest what they collected, so superintendents had every reason to keep visitors coming. By 1916, seasonal automobile passes ranged from \$2 at Glacier and Mesa Verde to \$10 at Yellowstone—comparable to roughly \$60 to \$300 today.

Then, in 1918, Congress ordered all fee revenues remitted to the U.S. Treasury—what critics have called a “black hole”—with no guarantee the money would return to the parks that generated it. Managers lost their incentive to collect fees, and parks fell back into dependence on appropriations subject to congressional politics. The pattern frustrated superintendents for decades, until an experimental reform in the 1990s began allowing parks to retain the lion’s share of their collections, with local managers granted discretion over how to spend the revenues.

Today, parks retain 80 percent of their fee revenues, reinvesting directly in the trails, facilities, and landscapes visitors come to enjoy. It’s the same feedback loop Rainier’s managers instituted more than a century ago.

— **Tate Watkins**

PERC Research Fellow and Executive Editor
of *PERC Reports*



HOW THE EAGLE CAME BACK

At America's 250th, the bald eagle is more abundant than at any time in living memory. The standard story of recovery needs a rewrite.

By Jonathan H. Adler

As we celebrate the nation's 250th anniversary, it is heartening that America's national symbol, the bald eagle, is no longer imperiled. Although once at risk of extinction throughout much of its historical range, this majestic species rebounded in the late 20th century, and populations are now in good health.

At the time of the nation's founding, the American bald eagle was quite abundant. There were as many as 100,000 eagles in what would become the United States. While Benjamin Franklin thought the bald eagle was "a bird of bad moral character," it had long been viewed as a symbol of strength, and it found a place in the Great Seal of the United States adopted by Congress in 1782. (Curiously, Congress did not formally make it the national bird until 2024.) In the 19th century, however, populations declined due to a range of factors, including hunting and habitat loss.

Bald eagles may be considered charismatic megafauna today, but it was not always thus. Indeed, they were once feared as predators. Although bald eagles eat mostly fish and carrion, they are opportunistic feeders that will also take small mammals, other birds, and even turtles—and farmers worried they would prey on poultry and livestock. The bald eagle was viewed more as a pest to eradicate than as a keystone species to conserve. Fortunately that perception of the bald eagle did not persist, and conservation efforts helped populations recover.

The bald eagle's rebound in the 20th century is unquestionably a great American conservation success story, though there is some debate about what drove its recovery. The U.S. Fish and Wildlife Service refers to the bald eagle

as "an Endangered Species Act success story," yet history suggests otherwise. Not only is the act unlikely to have contributed significantly to the bald eagle's recovery, but the rebound of the species also offers lessons for making other wildlife conservation efforts more effective.

While some want to credit the Endangered Species Act for preserving our national symbol, federal efforts to protect the bald eagle actually began decades earlier. The Migratory Bird Treaty Act was enacted in 1918, but its effects were limited. Concerned about declining bald eagle populations, Congress enacted the Bald Eagle Protection Act in 1940. Under this law it is illegal to "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... live or dead ..." without a federal permit. The law further defines prohibited "takes" to include efforts to "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb" bald eagles, and it further prohibits the possession, purchase or sale of eagle parts, feathers, and eggs. (As later amended, the act protects golden eagles, too.) Permits for incidental takes of bald eagles may only be issued where the secretary of the interior finds such takes to be "compatible with the preservation" of the species.

The Bald Eagle Protection Act was an important measure to protect the bird from hunting, but that was hardly the only threat eagles faced. The greatest threat to bald eagle populations in the 20th century came from the widespread—and at times quite reckless—use of the pesticide dichloro-diphenyl-trichloroethane, or DDT. Once hailed as a miraculous pesticide, DDT was sprayed indiscriminately throughout much of the United States

after World War II. While effective at controlling insect-borne disease, DDT also bioaccumulated in various raptor species and caused eggshell thinning, threatening their ability to reproduce. This not only threatened eagles but also brown pelicans, peregrine falcons, and other raptor species. DDT's effects helped inspire Rachel Carson's influential book, *Silent Spring*.

While not the only threat to bald eagles, DDT was a particularly pernicious one, and populations continued to plummet in the aftermath of DDT's introduction. According to the Fish and Wildlife Service, there were fewer than 500 nesting pairs in 1963—a decline of over 90 percent from estimated colonial-era populations.

As the evidence against DDT accumulated, the Environmental Protection Agency—not the Fish and Wildlife Service—took action, issuing an order in 1972 that largely prohibited DDT spraying in the United States. The Endangered Species Act was not enacted until one year later, in 1973, and most bald eagle populations in the lower 48 states were not listed as endangered until 1978. Not only did the ESA have nothing to do with eliminating the threat to bald eagle populations posed by DDT, it did little to add

to the regulatory protection against hunting and poaching that Congress had enacted in 1940.

In 1995, the Fish and Wildlife Service downlisted most bald eagle populations from endangered to threatened. Official recovery came more than a decade later, although not without opposition. Some environmentalist groups fought the removal of the bald eagle from endangered species regulations and took the service to court.

When the Fish and Wildlife Service fully delisted bald eagles in 2007, it estimated there were nearly 10,000 nesting pairs in the lower 48 states—more than 20 times the 1963 figure. Since then, dramatic progress has continued, even without Endangered Species Act “protections.” In 2021, the service estimated that by 2019 the bald eagle population in the lower 48 had reached 316,700 individual birds, including 71,467 breeding pairs, quadrupling since 2009. Bald eagles can now be found in all of the continental United States.

According to the Fish and Wildlife Service, listing bald eagles under the ESA “provided the springboard for the Service and its partners to accelerate the pace of recovery

through captive breeding programs, reintroduction efforts, law enforcement, and nest site protection during the breeding season.” It may well be that it was easier to devote resources and focus attention on bald eagle conservation once the bird was listed as endangered, but there is still little evidence that its regulatory protections played a significant role in the bird's recovery.

The act's defenders point to the bald eagle as an ESA success story in part because there are so few ESA successes to celebrate. In over 50 years, the act can be credited with, at most, a handful of recoveries, and there is ample evidence that, for some species, the act's “protections” do more harm than good. When a majority of listed species rely upon private land for habitat, it is not a good idea to penalize owners of habitat. Yet all too often, that is precisely what the act does. A more effective strategy would be to enlist landowners as active conservationists.

The listing of a species as endangered triggers a suite of costly and heavy-handed regulatory measures. And as implemented for most of the act's history, listing a species as threatened has the same effect. Although the act, as written, allows federal regulators to exercise discretion

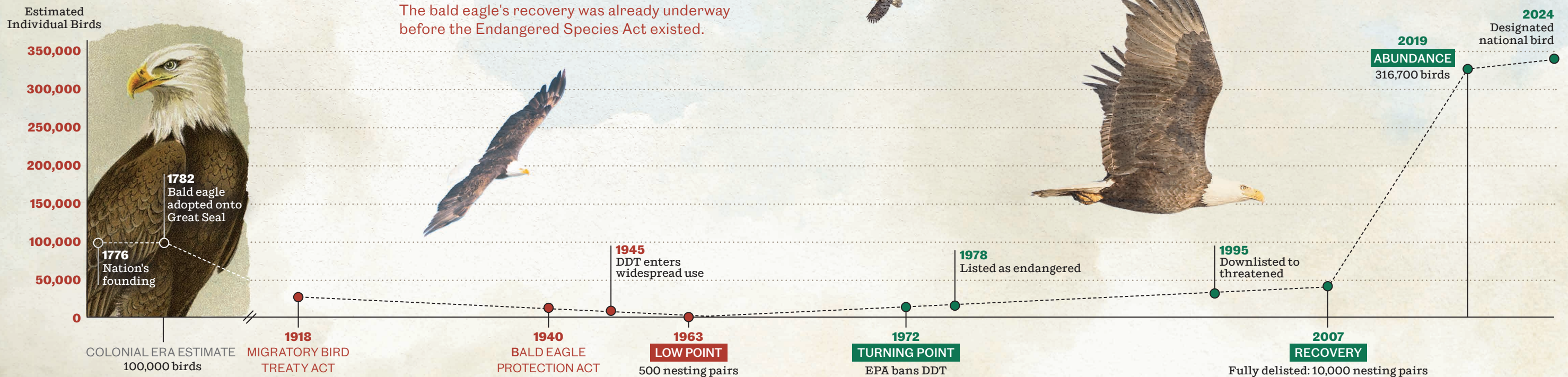
and adopt flexible, species-specific conservation strategies for threatened species, existing regulations treat most threatened species as if they were endangered, triggering the same inflexible rules for each species listed. Adopting such a one-size-fits-all approach to species conservation is easier to implement, and satisfies those who see the Endangered Species Act as a powerful means to inhibit development, but it does not work for all species. The strategies that work for some species will not work for others, and blunderbuss habitat regulation may not work for many species at all.

Americans should be pleased that bald eagle populations continue to expand. The growing number of bald eagles is a conservation success story. But given the act's longstanding and widespread record of failing to promote species recovery, we should be careful before attributing that success to the Endangered Species Act.



PERC Senior Fellow **Jonathan H. Adler** is the Tazewell Taylor Professor of Law at the William & Mary Law School. His books include *Rebuilding the Ark: New Perspectives on Endangered Species Act Reform*.

THE EAGLE'S LONG FLIGHT BACK



A century of layered laws, a pesticide ban, and a shift in public attitudes brought America's symbol back from fewer than 500 nesting pairs.

The bald eagle's recovery was already underway before the Endangered Species Act existed.



WHAT THE BISON CARRIES

Ten years after the bison became America's national mammal, its complex legacy is still being written

BY BIRCH MALOTKY



On May 9, 2016, the United States adopted the bison as the national mammal. Elevating the animal to such a position of esteem was a far cry from the late 19th century, when the skulls of millions of slaughtered buffalo were piled into mounds and their carcasses left to rot on the plains. Legislators could have chosen a simpler emblem of national virtue, wild grandeur, or patriotic pride. But the bison is a fitting symbol precisely because it embodies America's full, complicated conservation inheritance and its future promise.

The American bison represents abundance: tens of millions of animals shaping grasslands across the continent for millennia. It also represents destruction and dispossession: the deliberate slaughter of herds as settlers and the federal government remade the West and forced Native Americans onto ever-shrinking reservations, severing them from a species that long sustained material and spiritual life. It represents resilience: scattered herds persisting in the face of poaching, bad winters, new diseases, cross-

breeding, and lost habitat. And it represents recovery—if imperfect and unfinished—made possible by many hands.

The National Bison Legacy Act didn't shy away from this complexity, but rather highlighted it. The 23 "findings" in the legislation pointed to the bison's cultural, historical, ecological, and economic importance, its near extinction, and the broad coalition that ultimately prevented the disappearance of the species. For Jason Baldes, vice president of the InterTribal Buffalo Council, which coled advocacy for the bill with the Wildlife Conservation Society and the National Bison Association, "The story of what happened to the buffalo is not just a Native American story," he says, "but an American story that a lot of people don't know about."

It's going to take the whole American public to keep telling that story, he adds. The animal that once stood at the heart of Native life on the plains, then in the crosshairs of America's violent westward expansion, now stands for a different possibility: that a nation capable of destruction can instead choose to heal.

A CONTINENT OF BUFFALO

The ancestors of today's bison roamed alongside famed Pleistocene megafauna, but when giant ground sloths and woolly mammoths died out around 12,000 years ago, a smaller version of the epoch's bison persisted. With little competition for grazing, the population grew into the tens of millions, and its range expanded across two-thirds of the continent, becoming an ecological keystone. Their grazing, defecation, movement, and wallowing influenced fire regimes, aerated and fertilized the soil, dispersed seeds, and created a mosaic of habitat and resources for other grassland species.

The bison were also a cultural keystone. "Indigenous people were highly diverse because the people developed intricate relationships with the resources that were in their regions, like the Plains Indian people and the buffalo," says Baldes, who is also executive director of the Wind River Tribal Buffalo Initiative. Under his leadership, the initiative works to restore buffalo on the Wind River Indian Reservation, south of Yellowstone, through land rematriation, community revitalization, and youth education. "There was an intrinsic value to the plant and animal biodiversity that the people relied upon and stewarded and cherished and revered," he continues. "And that relationship had gone on for millennia."

But then came Europeans with new technologies—and a new land ethic. Under Manifest Destiny, white settlers claimed they had the right, even the obligation, to "civilize" the West. In the space of decades, the relationship between buffalo and Indigenous peoples was severed as the herds themselves were destroyed by settlers, the U.S. Army, and hide-hunters. From tens of millions, only an estimated 85 wild bison existed in U.S. territory outside of Yellowstone National Park by the time early bison advocate William Hornaday published *The Extermination of the American Bison* in 1889.

Theodore Roosevelt, later a great champion of the buffalo, offered one account of the reasons for this precipitous decline in his 1885 *Hunting Trips of a Ranchman*:

Its destruction was the condition precedent upon the advance of white civilization in the West. ... Where the buffalo were plenty, they ate up all the grass that could have supported cattle. ... Above all, the extermination of the buffalo was the only way of solving the Indian question ... its disappearance was the only method of forcing them to at least partially abandon their savage mode of life.

From that nadir, buffalo could have slipped into extinction, but a fragile coalition emerged to preserve the last of the species. Their attempts to rescue the bison became one of the earliest tests of whether Americans could save something they had nearly destroyed.

SAVED BY MANY HANDS

The rescue of the bison did not begin with a centralized recovery plan. It began with five scattered private herds that conserved enough animals to make restoration possible, followed by grassroots support for protection of the relict wild herd in Yellowstone National Park and restoration of wild herds elsewhere.

The private herds were established independently in the late 1800s by a variety of people—several of whom were Native American or had Indigenous ancestry—who had roped wild buffalo calves to raise in captivity. Over the years, their herds grew, got divided amongst heirs, and were sold, mostly to wealthy ranchers and businessmen: bankers, railroad barons, oilmen, and other tycoons. Some of them made it to the New York Zoological Park, now the Bronx Zoo, founded by Roosevelt and directed by Hornaday. When the Yellowstone population dipped to a perilous low of perhaps two dozen individuals around 1902, the park bolstered it with 21 bison from a mix of private collections.

Without those herds, there would have been little left for public agencies or conservation organizations to restore. Nearly all of the buffalo in America today are descended from the couple dozen in Yellowstone and the fewer than 100 that started the private herds. Although no one knew at the time, the plurality of these small herds was a saving grace for the species, providing a surprising amount of genetic diversity to what was a dangerously small founding population. A decentralized patchwork of owners accomplished what no single agency at the time could have.

And yet, concern remained that private herds were vulnerable, and so Hornaday, Roosevelt, and several others founded the American Bison Society to raise public awareness and advocate for establishing new herds on federal lands. In 1907, years of stewardship, advocacy, and coalition-building paid off when 15 animals from the Bronx Zoo were shipped to the Wichita Mountains Wildlife Refuge, marking the first wildlife reintroduction in North America.

"This is an example of what you can do when you bring these disparate groups together," says John Calvelli, executive vice president of public affairs at the Wildlife Conservation Society, formerly the New York Zoological Society. He adds that even American Express and Wells Fargo donated trains to ship the bison from the Bronx to Oklahoma.

Not long after, more federal herds were established, including at the National Bison Range, carved from the Flathead Reservation in Montana in 1908. The herds grew steadily in their new preserves, and in 1935 the American Bison Society voted itself out of existence, declaring the species saved and its work done. Calvelli, who directed the bison-as-national-mammal campaign, says bringing bison back from the brink of extinction "set an amazing precedent that yes, we have done damage, but also that we can correct that damage."





Even so, bison herds remained small, mostly fenced in, and heavily managed, with bison themselves legally classified as livestock, not wildlife. In addition, Native Americans remained severed from the buffalo, even while the animals were restored to lands taken from reservations. As Baldes says, “Every promise or treaty ever made was broken or violated in some form or fashion, and we’re still working to heal.” The buffalo are foundational to that.

RESCUE TO RESTORATION

A conservation system built to rescue is not always equipped to support abundance. But in the second half of the 20th century, as the science of ecology matured, environmentalism took off, and tribal sovereignty movements gained power, a new coalition started growing. Not satisfied with herds merely existing, they began to define and work toward functional restoration: ecologically and culturally.

The Crow tribe was the first to welcome buffalo back to their reservation, initially in the 1930s and then again in 1972. The InterTribal Buffalo Council formed in 1992 to coordinate and support buffalo restoration, and today it has more than 80 member tribes managing 20,000 buffalo on one million acres. In 2022, the Confederated Salish and Kootenai Tribes closed the circle by reclaiming management of the Bison Range from the federal government. On Wind River, Baldes welcomed the first 10 buffalo to the reservation the same year the National Bison Legacy Act passed. The herd, which is managed as wildlife and has grown to more than 200, is nourishing his community, revitalizing culture, and restoring the ecosystem.

In Yellowstone, bison number in the thousands after managers in the 1960s stopped limiting the population to a few hundred. In response to concern and litigation around potential disease risk to cows, the federal government developed the Interagency Bison Management Plan in 2000, which has successfully prevented any documented brucellosis transmission from buffalo to cattle. Federal, state, and tribal partners also developed the Bison Conservation Transfer Program to send certified disease-free Yellowstone bison to tribal lands across North America.



State and private herds have also grown dramatically. The Nature Conservancy manages 6,600 bison on 11 preserves. American Prairie hosts around 900 head across a mix of private and public land in Montana. And commercial U.S. herds, sustained by a growing market for bison meat, have ballooned to nearly 200,000 animals.

Together, these nations, organizations, states, agencies, and individuals are beginning to coordinate research and management across the metapopulation of bison in North America. Many of them also came together in the push to designate bison as the national mammal. On the power of the buffalo to unite so many disparate groups, Baldes says that “people are looking for ways to better understand what it means to be a part of a system, not above it, or in control of it. So I think buffalo restoration gets to something special in our psyche and in our soul.”

From astonishing abundance through catastrophic destruction, in a saga marked by private initiative, tribal leadership, public action, and unfinished restoration, a shared vision is emerging of great herds of bison roaming freely across the plains. It’s ambitious, Baldes admits, but possible if we choose to work toward it together. “Things can heal themselves if we let them,” he says, “and that’s what happened when we put buffalo back.”



Birch Malotky is the emerging issues initiative coordinator at the University of Wyoming’s Haub School of Environment and Natural Resources and editor of *Western Confluence*. She lives in Laramie, Wyoming.



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AMERICA AT 250



America's Tree, America's Cause

When Congress designated the oak as the national tree in 2004, it made formal something that people have known for centuries: Oaks are the quintessential American tree. Long-lived, wide-crowned, and ecologically generous, they are what scientists call a keystone species. Their acorns feed countless creatures, from deer to turkey to bears, and their leaves support hundreds of insect species that in turn sustain songbirds and beyond. And oak wood helped build the country, from wagon wheels to whiskey barrels.

But our national tree is in trouble due to the combined stresses of climate change, drought, pests, pathogens—and too much mature, undisturbed forest. Most oak species are fire-adapted, meaning their seedlings need sunlight to establish. In dense, shaded woodland, faster-growing competitors crowd them out. Across the East, decades of wildfire suppression combined with landowner preferences for mature, park-like vistas have steadily tipped forest composition away from oaks. In the West, similar fire-suppression dynamics limit recruitment of black oaks.

Since most oaks grow on private land, particularly east of the Mississippi, the path to recovery runs through private landowners. That means the future of oaks relies on overcoming real barriers—such as the costs and perceived risks of prescribed fire, as well as aesthetic preferences for settled, undisturbed woodland.

In addition to landowners, saving the oak will require conservation groups, universities, and government agencies working together. The White Oak Initiative, a national

coalition spanning more than 20 states, unites many of these partners, educating landowners on prescribed burning and mechanical thinning, providing financial and technical support to the family forest owners who control the majority of white oak acreage, and organizing acorn collection drives to reseed state nurseries. The future of America's national tree depends largely on the people who own the ground it grows in.

— **Sophie Gilbert**
PERC Senior Researcher

from the

King's Deer



to the

People's Wildlife

America's break from royal game laws created broad access to fish and game, but its lasting achievement was a system where users pay to conserve them

by Whitney Tilt



Long before the United States had a system of wildlife managed by state agencies, funded by hunting licenses, and conserved with the support of sportsmen, access to game was a privilege of rank. In the British tradition, access ran through land, status, or power. The United States ultimately developed something quite different: one of the world's most effective and democratic systems of wildlife management. Its origins date back to colonial times, when settlers, tired of rule by a distant crown, rejected the notion that fish and wildlife

should be reserved for monarchs, landlords, and the elite alone.

But the American story is not simply one of access. Open access could, and often did, become overuse. The crucial question is how a nation that treated wildlife as a common resource eventually built institutions to conserve it: game laws, wardens, professional management, and user-pay systems that turned hunters and anglers into central supporters of conservation.

The idea of conserving wildlife by curbing human appetite is ancient.

Sources as varied as the Old Testament and Genghis Khan's Code contain laws limiting harvest to ensure future plenty. What became distinctly American was the link between democratic access and democratic responsibility. Wildlife would not be the king's private preserve. Fish and game would belong to the people, but the people would also have to curb their own appetites, share them with others, and help pay for their management.

The transformation began with the system American colonists rejected.

The King's Game

From the Early Medieval Era through the 1700s, England enacted and enforced laws to reserve the privilege of property and access to fish and game for the ruling classes. "Royal" species like deer, falcons, salmon, and others deemed to have commercial and sport value, were reserved for the exclusive use of royalty and their courts. Large areas of land were proclaimed royal forests and set apart for the Crown's exclusive use, and gamekeepers were employed to keep commoners out.

Through the Middle Ages, the Black Death, and into the Renaissance, economic hardship and social inequality drove many of the Crown's subjects to poach game from wealthy landowners' forests, fields, and streams, often leading to violent conflicts. In response, Parliament passed the Black Act in 1723. Aimed at "wicked and evil-disposed men going armed in disguise" with blackened faces to poach deer, steal fish, and the like, offenders could be fined, deported to America, or sentenced to death.

As influence and law-making increasingly transitioned from the Crown to Parliament, the status quo remained largely unchanged. Parliament continued to enact laws, such as "qualification statutes," to restrict the taking of game to those who held the requisite level of wealth and land.



Wildlife for the People

The American Colonies of the 17th and 18th centuries lay far beyond the control of European aristocracy. Having come from lands where ordinary people were routinely arrested for attempting to feed their family with a salmon from a nearby stream, they were now in a country with a seemingly inexhaustible supply of fish, wildlife, timber, and other natural resources. They depended on those resources for food, clothing, shelter, and trade.

It was a widely held tenet in Colonial America that citizens were free to take fish and game on all unenclosed lands—ones not sealed by fence or wall—within their colony, even if the land was privately owned. The 1683 Frame of Government of Pennsylvania, for example, set forth the right of its

citizens "to fowl and hunt upon the land they hold, and all other lands therein not enclosed."

From the very outset of European colonization, heavy hunting pressure was placed on species such as white-tailed deer, turkey, and game birds for their meat. Resident wildlife became scarcer and scarcer, prompting the first attempts at game laws. In 1646, the town of Portsmouth, Rhode Island, ordered a closed season and decreed that "if any shall shoot a deere within that time he shall forfeit five pounds." By the 1770s, 12 colonies had enacted game laws, including seasons, bag limits, and special restrictions such as no night hunting, or no hunting on Sundays, which served the pursuits of both conservation and religion.



Abundance Meets Its Limits

The Revolutionary War forged 13 loosely allied colonies into a young nation on wobbly legs. By the conclusion of the War of 1812, Great Britain, France and Spain no longer contested U.S. authority on the North American continent, and the newly minted country spread outward. In this newly found freedom, wildlife took a beating. Once-abundant populations of deer, turkey, beaver, otter, trout, and salmon disappeared from forests and rivers near towns and settlements. The heath hen, passenger pigeon, and Carolina parakeet declined steadily in the face of hunting and habitat loss—each would be functionally extinct by 1900.

The observations of Englishman John Woods on hunting in southeastern Illinois around 1820 are telling: “The time of sporting lasts from the 1st of January to the last day of December,” he wrote, “as every person has a right of sporting, on all unenclosed land, for all sorts of wild animals and game, without any license or qualifications as to property. ... If you [suggest constraint] they lose all patience, and declare, they would not submit to be so imposed on.”

In the United States of America of the early 1800s, any suggestion of restricting free access to the seemingly endless bounty of fish and game smacked of tyranny. Even as the colonies and early state governments attempted to enact game laws, they often lacked the resources to enforce them. In 1739, absent funding to enforce its deer season law, Massachusetts attempted a self-funded approach, instructing each town to appoint a “deer reeve”—America’s first game wardens. Reeves received half of the 10-pound fine for any conviction they secured. Similar positions were subsequently authorized in Rhode Island, Connecticut, New York, and North Carolina.

While the gamekeepers of 16th century England protected wildlife for the exclusive use of English nobility, deer reeves, and, later, wardens, acted on behalf of a civil government to protect deer to ensure their continued harvest by the public. These early, scattered efforts at conservation marked a nascent movement to conserve fish and game that would continue to expand throughout the 19th century. The tip of the spear would be the sportsman.



CREDIT: MARK CATESBY



CREDIT: ANTON MARIA VASSALLO, C. 1650/1660

Sportsmen Take the Lead

As deer and turkey disappeared from the forests and trout and shad from the rivers, hunters and anglers became increasingly alarmed. “Who hears the fishes when they cry?” Henry David Thoreau lamented in 1849, as he watched spawning attempts of salmon and shad blocked by dams on the Merrimack and Concord Rivers.

Frightened by the decline of fish and game populations, sportsmen pressed for protective action in the form of bag limits and seasons. But such efforts faced a wall of hostility from the general populace, who opposed any kind of game laws or infringements on their individual rights. Citizens maintained a deep distrust of anything that smacked of the tyranny of English game laws, privileges of the aristocracy, and oppression of the “lesser born.”

A “sportsman” of the 18th and 19th centuries would be defined as an individual who hunts, shoots, and fishes wild game as a pastime. By the start of the 1860s, sportsmen were “easily the largest, most influential, and best-organized segment of the nation to be concerned about nonutilitarian environmental issues,” according to historian John Reiger in his *American Sportsmen and the Origins of Conservation*. “They began to think in more expansive terms ... concerns increased for fishes and nongame, as well as for game birds and mammals, and the realization started to take hold that the preservation of habitat was more important than saving individual animals.”

In 1844, a group of influential New Yorkers formed the New York Sportsmen’s Club with its goal “confined solely to the protection and preservation of game” and with “every dollar of its funds appropriated solely for those purposes.” In 1887, a group of concerned hunters established the



Boone and Crockett Club, the longest-tenured conservation organization in North America, “to promote the conservation and management of wildlife, especially big game, and its habitat, to preserve and encourage hunting and to maintain the highest ethical standards of fair chase and sportsmanship” on the continent.



These “gentlemen sportsmen” had nothing in common with the “market” (commercial) or “pot” (meat) hunters whom they condemned for their wanton waste and avarice. As Reiger documented, the sportsman extolled the aesthetic of hunting and fishing and the belief that the concepts and

practices already developed in Europe, especially Great Britain, needed to be adopted in America if fish and wildlife were to be conserved. In retrospect, this cohort of sportsmen certainly smacked of European nobility, entitled and elitist. Regardless, these upper-class sportsmen were the force that pressed for fish and wildlife conservation, as they did for progressive social reforms such as women’s suffrage, under the concept of noblesse oblige, which inferred the responsibility of the privileged to act with generosity toward those less fortunate.

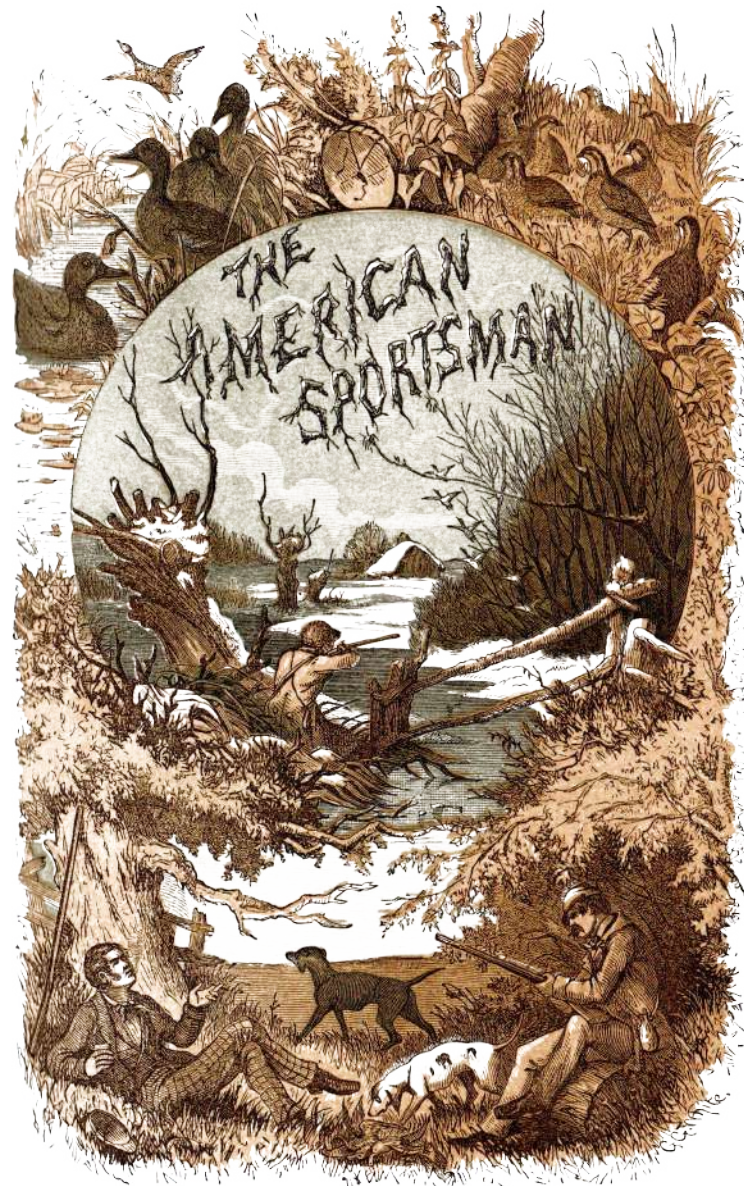
While Theodore Roosevelt, Gifford Pinchot, and a core of other well-known individuals commonly receive conservation accolades, their efforts were firmly built on a foundation laid down by the sportsmen, and increasingly over time, women, who came before and with them. From the 1870s on, sportsmen and women worked to enact and enforce new game laws, restrict commercial hunting and fishing, adopt national fish culture

programs—that included efforts to reduce water pollution—and establish game preserves.

Echoing prior colonial eras when wildlife “took a beating,” the late 1800s into the 1900s were marked by the overexploitation of what once seemed an endless bounty of fish and game, as well as the unfettered harvest of other natural resources. Fueled by Manifest Destiny, industrial growth, and the near absence of regulation, the resulting damage to forests, rangelands, and water resources taught hard lessons of the “tragedy of the commons,” whereby individual self-interest trumped concern for the conservation and wise management of nature.

Nevertheless, sportsmen’s organizations continued to exert pressure to enforce limits. Publications such as *The American Sportsman* (1871) and *Forest and Stream* (1873) were established to amplify the reach and impact of their conservation message, railing against market gunners and net fishermen while espousing the ethics and responsibilities of sportsmanship.

While initially focused on limits to harvest, increasingly there was also an understanding that the loss of habitat also meant the loss of places to hunt. Sportsmen, therefore, reasoned that two types of selected areas should be set aside: ones to provide refuges for wildlife and others as places to hunt. “Public shooting grounds must be established for the rank and file of the gunners who cannot afford to belong to exclusive clubs,” wrote President of the American Game Protection Association John Burnham in 1919. “This is the duty of the State, but the sportsmen must take the initiative. With the public shooting grounds must come more reserves where the birds should have absolute protection, for as the country becomes more settled, shooting would become impossible without them.”



CREDIT: J.B. LIPPINCOTT

By 1850, wildlife protection legislation of some sort was found in 19 of the 30 existing states. In 1866, Massachusetts and New Hampshire established the first agencies to manage fisheries, and “game” would be added in subsequent years. By 1880, fish and game legislation of some fashion had been enacted in all 48 states, including prohibitions on waste of game (Wyoming, 1871), hide hunting (Oregon, 1874), and market hunting (Arkansas, 1875). Other regulatory innovations included bag limits on game birds (Iowa, 1878) and mandated rest days for wildfowl (Maryland, 1872).

Seeking funds to pay for management, New York was the first state to require hunters to purchase a license, in 1864, while neighboring New Jersey was the first to institute specific licenses for nonresidents—who paid higher fees—in 1873. By 1920, most states had adopted laws requiring all hunters to buy state licenses with funds earmarked for their fish and game agencies. In many cases, these funds were the sole revenue source to carry out fish and wildlife management activities.



The Conservation Bargain

In 1928, Aldo Leopold and a distinguished committee of conservationists were asked by the American Game Institute (today’s Wildlife Management Institute) to draft a policy for game management. In the midst of a growing depression and mass unemployment, the resulting 1930 American Game Policy presented seven fundamental actions. They included extending public ownership and management of game lands as far and fast as land prices and available funds permit, recognizing the landowner as the custodian of public game on private lands, finding facts and experimenting, and recognizing that all citizens share the responsibility for conservation of wildlife as a whole. While all seven recommendations carry down through time, nearly a century later, the last deserves special attention: “Provide funds. Insist on public funds from general taxation for all betterments

serving wildlife as a whole. Let sportsmen pay for all betterments serving game alone. Seek private funds to help carry the cost of education and research.”

Hunters and anglers were already supporting state management of wildlife through purchases of licenses and tags. They also stood up to support additional measures. In 1934, President Franklin Roosevelt signed the Migratory Bird Hunting Stamp Act. Under the act, waterfowl hunters aged 16 and older are required to buy and carry an annual Migratory Bird Hunting and

Conservation Stamp, better known as simply a “Duck Stamp.” From the total purchase price—\$1 in 1934, \$25 in 2026—98 percent of proceeds are allocated directly to waterfowl and wetland habitat conservation. Since its enactment, over \$1.2 billion has been used to acquire land or conservation easements on more than six million acres of wetlands and wildlife habitat for inclusion in the National Wildlife Refuge System—an area larger than the State of New Jersey.



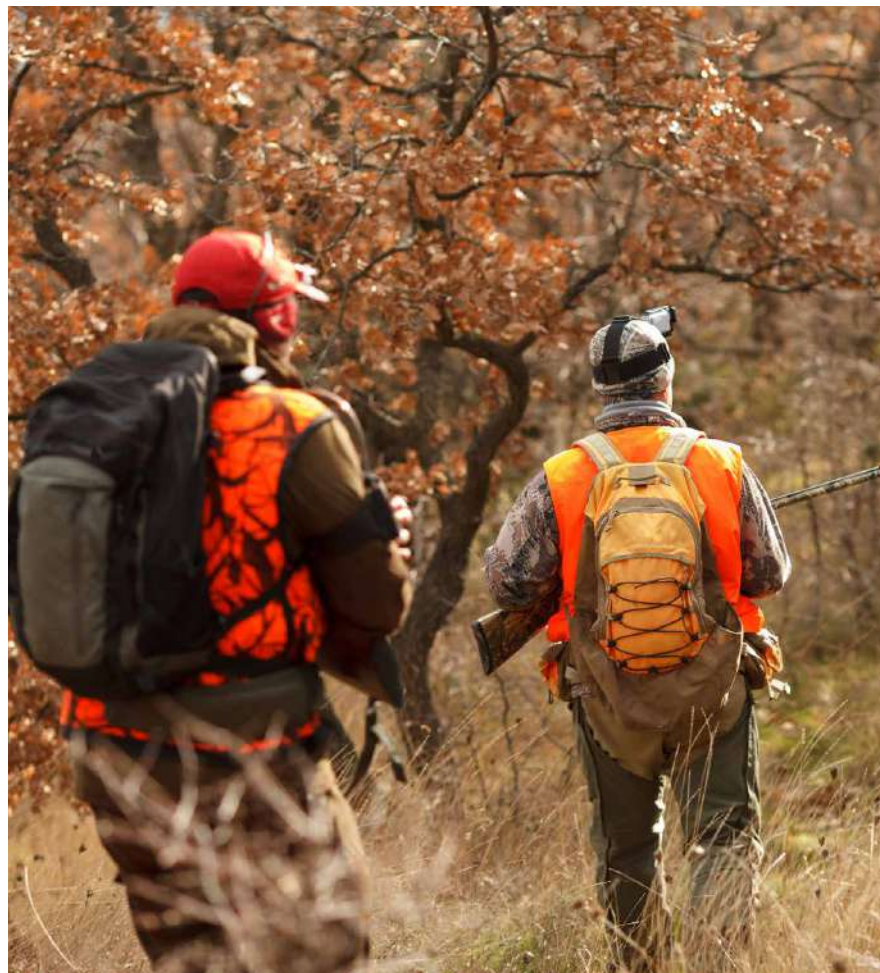
In 1937, the concept of “user pays, user benefits” took another significant step forward with the passage of the Federal Aid in Wildlife Restoration Act, commonly known as the Pittman-Robertson Act for its primary congressional sponsors—Senator Key Pittman of Nevada and Representative Willis Robertson of Virginia. This first-of-its-kind legislation provided permanent funding to state wildlife agencies for habitat restoration, management, research, education, and the development of public access areas. Funded by federal excise taxes on firearms, ammunition, and, later, archery equipment, revenues are apportioned to the states on the basis of land area and number of licensed hunters, with the stipulation that states match federal funding of project costs at a ratio of one to three. Fish got their due in 1950, when President Harry Truman signed

the Federal Aid in Sport Fish Restoration Act into law.

Arising from subsequent examinations by wildlife professionals of the fundamentals that led to the form, function, and successes of wildlife conservation in the United States today, the so-called North American Model of Wildlife Conservation sets forth seven principles. Foremost among them, it affirms the importance of wildlife as a public trust, the allocation of wildlife by law, hunting opportunity for all, science as a vital tool for developing wildlife policy, and killing of wildlife only for legitimate purposes. As Shane Mahoney has written in a previous issue of this magazine, the model “represents a singular achievement,” demonstrating “that it is possible to reverse declines in natural diversity and abundance across

vast geographic areas while maintaining multiple uses and public access to wild, renewable resources.” It serves as both a historical narrative for understanding the origins and development of conservation in North America and an explanation for its current regulatory and management practices.

Hunters and anglers have been the essential ingredient responsible for today’s wildlife conservation system in the United States—a system unmatched in the world. Since the early 1800s they have advocated for enacting game laws governing seasons, bag limits, and hunter conduct; established professional state fish and wildlife agencies; funded state fish and wildlife management from their own pockets; and supported meaningful wildlife conservation programs across America.



The People's Responsibility

On the eve of America’s 250th birthday, this history offers more than a celebration of past success. It offers a framework for the next era of wildlife conservation. The North American Model of Wildlife Conservation remains a guide for the wildlife professional, but one need not look much further than the Leopold Committee’s recommendations from nearly 100 years ago to see the enduring obligations from the American system: humility, experimentation, stewardship, and partnership.

America’s contribution was not merely shifting from an Old World inheritance of “the king’s deer and the king’s land” to a model that made wildlife available to ordinary citizens. It was creating institutions that made users responsible for conservation, turning access into stewardship and use into support. Wildlife would belong to the people, but it would not endure unless the people conserved it.

That remains the central lesson of the American model. From the king’s deer to the people’s wildlife, America’s achievement was not simply widening access to fish and game. It was ultimately making conservation the work of the people themselves.

Those recommendations may be somewhat rusty from neglect and underuse, but they are not relics. Updated for today, they remain a useful charge:

- 1** Extend public-minded stewardship and management of wildlife habitat just as far and fast as land prices and available funds permit.
- 2** Recognize the private landowner as the custodian of wildlife, on behalf of the public.
- 3** Experiment, monitor, and employ adaptive management.
- 4** Continue to train a cadre of wildlife professionals for skillful administration, management, and fact-finding.
- 5** Recognize that all citizens share with sportsmen and landowners the responsibility for conservation of wildlife as a whole.
- 6** Ensure adequate funding, drawn from public and private funds, to ensure robust and sustained wildlife conservation.



Whitney Tilt is the private lands coordinator at PERC. As part of his responsibilities, he manages the Paradise Valley Working Lands Group and coordinates PERC’s field projects in Montana’s Paradise Valley.



Because Incentives Matter For Conservation

Free Markets



Conservation

OUR MISSION

PERC is dedicated to advancing conservation through markets, incentives, property rights, and partnerships.

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A world with healthy land, water, and wildlife sustained by voluntary, cooperative conservation and incentives for environmental stewardship

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PHILANTHROPIC PARTNER SPOTLIGHT

A Family Committed to Keeping America Beautiful



Dominic DeMarco and his family love the West—and they want to make sure it is conserved for our country’s next 250 years

Dominic DeMarco knew the rule at Yosemite: Get your food into the bear locker ASAP.

He placed his cooler on a picnic table, then went back to his car to grab one more bag. While his back was turned, a black bear walked into camp, grabbed the cooler, and walked off with it. The next day, Dominic found the contents strewn about nearby, though he was impressed to find the glass peanut butter jar unbroken, open, and licked clean.

Dominic’s love of the Mountain West started with road trips in college, when the economics major spent time hiking the Rockies and sleeping under open skies. Those trips led him to discover his favorite destination: Yellowstone National Park.

Today, Dominic works in finance, but he holds an abiding love of the West. He and his family have made countless memories exploring the greater Yellowstone region. Through those family trips, he recognized the urgency of protecting those places and their wildlife. And his economics training told him that lines on maps and regulations on paper aren’t enough. Conservation requires sound incentives.

This is especially the case for the many western ranchers who provide habitat, migration pathways, and forage for

elk, pronghorn, and other ungulates. Dominic saw that their land provides essential conservation benefits for the public, but at a private cost. For conservation to be durable, it needs to align incentives for private property owners and nature alike, not merely rely on punitive regulations.

Five years ago, a copy of PERC Reports was accidentally delivered to Dominic’s home. His wife held onto it, knowing it fit his interests. Shortly after reading that issue, Dominic made his first generous contribution to PERC.

The DeMarco family shares a love of America’s wild places, and they want to make sure these places are conserved for the next 250 years. His youngest daughter interned with PERC’s innovation lab last summer, where she helped build an interactive map of Paradise Valley’s private working landowners. His oldest daughter is now interning with PERC to encourage more generous Americans to help advance a new era in conservation.

Dominic and his family have become actively engaged with PERC leadership, offering ideas and feedback on the Greater Yellowstone Ecosystem. Thanks to their generous partnership and many others like it, PERC is rapidly expanding its work in Yellowstone and nationwide.

Interested in exploring how your support can help PERC advance the next era of conservation? Contact Rupert Munro at rupert@perc.org or 406-587-9591.



From Barbed Wire to Virtual Fencing

The invention of barbed wire transformed the West. It dramatically lowered the costs of containing cattle, sheep, and horses on one's property, and it helped transform the western range from an open-access resource into a more managed one. That allowed for proper stewardship of forage, protection of water sources, and herd improvement through selective breeding. It also, however, impeded the movement of wild game.

Barbed wire was first produced commercially in the 1870s, and ranchers quickly adopted the new technology to provide small pastures close to their dwelling places and to protect hay grounds. Extending it to encompass wider grazing areas was often more difficult, in part because of a lack of legal property rights to the open range. But the economic benefits associated with the invention were significant. Economist Richard Hornbeck estimates that between 1880 and 1890, barbed wire caused farmland values in the West to increase by 50 percent—an amount equal to as much as 3 percent of U.S. gross domestic product at the time.

Virtual fencing holds similar potential for the West, and with accompanying benefits for wildlife. The rate of adoption will be slower because ranchers already have a workable containment mechanism. But over time, the financial advantage of using virtual fencing, and the ability to target confinement to a particular group of animals, will mean that the technology will replace much of the existing barbed wire fencing in the West.

— P.J. Hill

PERC Co-Founder and Senior Fellow



CONSERVATION THE AMERICAN WAY

HOW PROPERTY RIGHTS, INCENTIVES, AND THE RULE OF LAW RESCUED OUR WILDLIFE, CLEANED OUR RIVERS, AND CLEARED OUR SKIES

BY DOMINIC PARKER

In honoring America's 250th birthday, environmentalists often point to the creation of national parks during the late 19th century or to the inaugural Earth Day in 1970. No doubt those are important milestones. But a focus on them overlooks enduring forces less visible, yet fundamental, to environmental progress: the constitutional framework the Founders left behind.

The Founding Fathers did not envision environmental problems that came centuries later, like severe overhunting during the 19th century and rivers ablaze with chemical fires during the 20th. But they did enact a constitution with guideposts for how later Americans could grapple with such challenges. Those guideposts—respect for rule of law, property rights, federalism, and private markets—have at times frustrated interest groups who would prefer top-down environmental mandates. Over the long run, however, holding to these principles has delivered environmental successes while balancing trade-offs with other American priorities, including economic growth, individual freedom, and local governance.

America's three main episodes of environmental crisis and recovery—wildlife decimation, water contamination, and air pollution—are cases in point. Their histories feature first the violation of, and then the return to, our constitutional principles. Notable regulatory mandates aided recoveries, but only in combination with property rights and market-based innovations that are quintessentially American.



WILDLIFE TO THE BRINK—AND BACK

Our nation’s rollercoaster ride from wildlife abundance, to decimation, to recovery begins through the eyes of colonial settlers. Arriving from European landscapes barren of fauna, a 1600s settler to Virginia marveled at “woods abounding with deer and songbirds of every kind” while a 1700s settler to Massachusetts wrote of “passenger pigeons so thick I could see no sun.”

By the middle of the 19th century, abundance began to give way to scarcity. Populations of beaver, turkey, and geese were nearly extinguished from eastern states by 1850. But the most dramatic changes happened from 1850 to 1900, America’s infamous “age of extermination.” The slaughter of bison on the plains is well known: from tens of millions prior to 1850, down to roughly a thousand by 1890. Passenger pigeons were driven to extinction. Perhaps most stunning, the now ubiquitous white-tailed deer was driven from an estimated 35 million in 1700 to less than 500,000 by 1900.

The proximate reason for mass extermination was over-hunting, especially through commercial markets. America’s largest cities—New York, Philadelphia, Chicago—had major markets for fur, meat, hides, and feathers. Restaurants and grocers sold venison and geese. Vendors sold pelts, hats, robes, and skin. Subsistence hunting was

also a factor, as logging and mining camps fed off elk and venison, and rapid population growth meant mouths to feed with wild birds and mammals.

The underlying problems, however, emanated from breaches in constitutional principles that helped ensure wildlife remained open access for most of the 19th century. (Thomas Jefferson recognized this dynamic, as Jonathan Wood explores in this issue.) Property rights against trespass were successfully opposed by populists who thought wildlife ought to be freely available to all. Courts and politicians ensured that hunters had unrestricted access to “unimproved” private land, leaving most of the country open for shooting. And while plenty of hunting regulations imported from England were on the books, few were enforced.

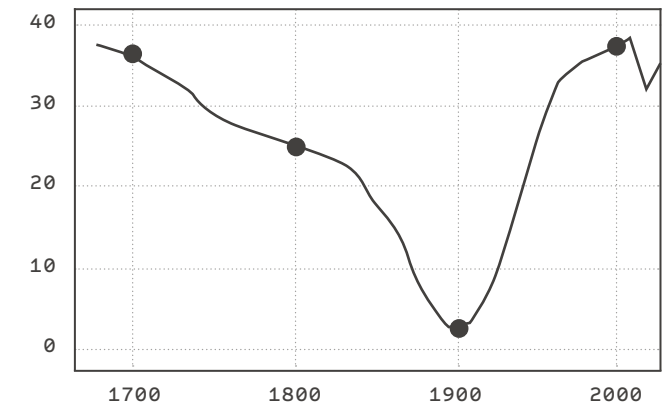
As wildlife populations continued to plummet, there was eventually a will to consolidate law enforcement authority. The first state-run game departments were created in California and New Hampshire in 1878 and the last in Mississippi in 1932. The new systems restored rule of law by implementing hunting licenses to fund game wardens—specialized police who enforced hunting regulations. The wardens also helped enforce the 1900 Lacey Act, an effective ban on the commercial sale of wildlife products that still stands today.

Federalism was also wielded to promote conservation in the early 20th century. In response to the new flow of hunting license sales, some states began to divert the revenue toward roads, schools, and other purposes unrelated to wildlife. To address the threat, wildlife interests successfully lobbied for a federal tax on hunting rifles, with tax revenues distributed to states under the condition that states not divert license revenue. (For more on the history of wildlife conservation funding, see Whitney Tilt in this issue.) The result was increased spending on habitat and conservation.

Relatedly, throughout the 20th and early 21st centuries, property rights against trespass were strengthened in ways that promoted conservation. Over time, more farmland became enclosed, more states passed statutes requiring landowner permission, and more courts upheld private rights. Stronger property rights led to more private effort to enhance habitat.

The resulting rebound in game species has been nothing short of remarkable. American deer populations rebounded to over 20 million by 1950. (See Figure 1.) Even as U.S. human populations swelled, deer continued their determined ascent, to 35 million by present day. Most other hunted species, including pronghorn, elk, geese, and turkeys, rebounded as well.

FIGURE 1: U.S. DEER POPULATION
(IN MILLIONS, ESTIMATED)



Source: Lueck and Parker (2025). The Creation and Extent of America’s First Environmental Agencies. *Journal of the Association of Environmental and Resource Economists* 12(5): 1097-1132



PHOTO CREDITS:

POACHED BISON IN YELLOWSTONE.
NATIONAL PARK SERVICE

OVERHARVEST OF WILD GAME.
DETROIT PUBLIC LIBRARY BURTON
HISTORICAL COLLECTION

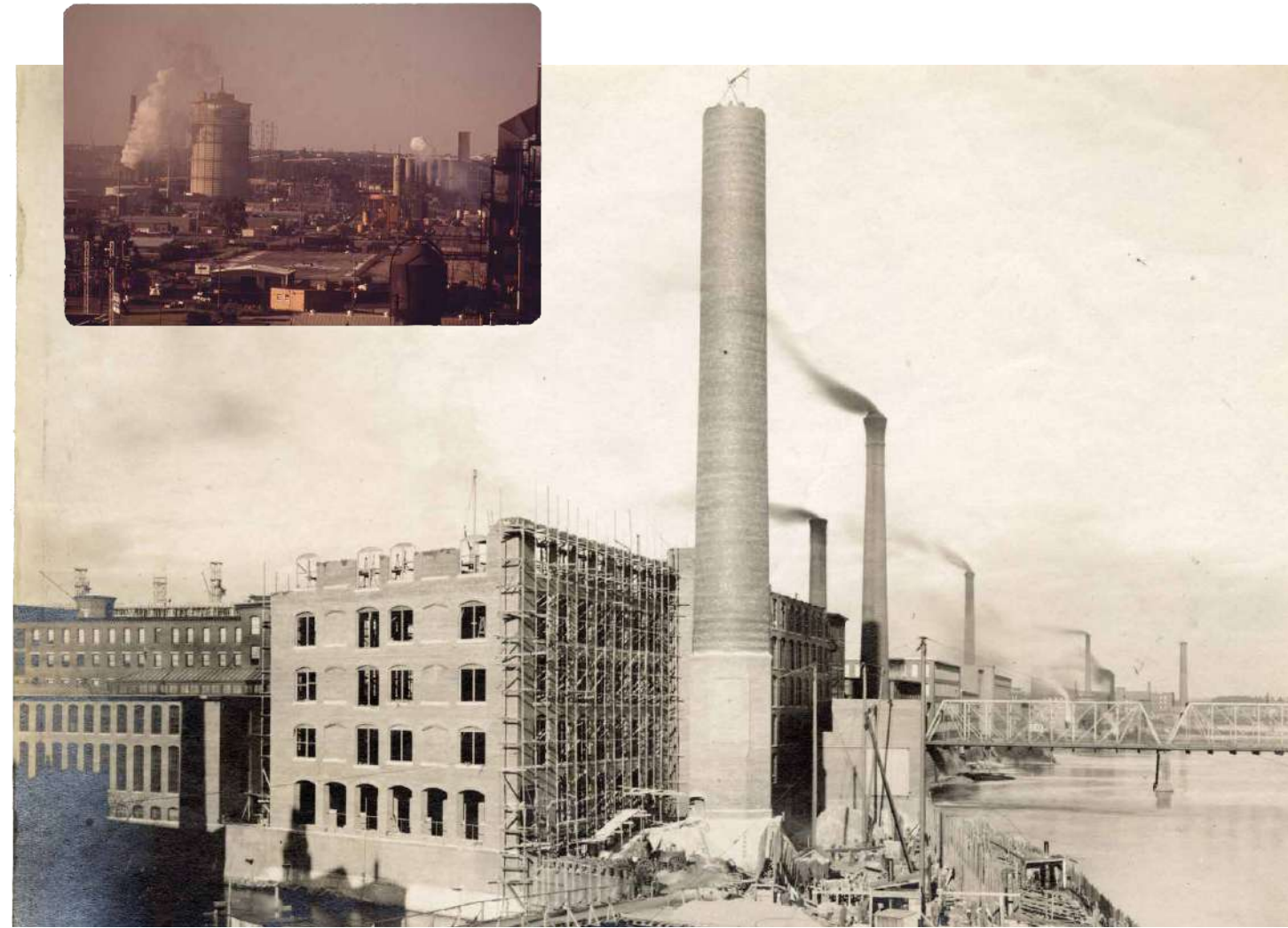
FROM BURNING RIVERS TO FISHABLE WATERS

Another major American environmental challenge was polluted water, with burning rivers serving as bleak milestones. Wastewater treatment was limited in many cities, and factories lined the banks of rivers and lakes, discharging waste directly into them. During the 1930s a health official described the Mississippi River near Minneapolis as a “slimy, sludge-filled septic tank” while a New Jersey citizen called the Raritan River during the 1940s an “open sewer.” Cleveland’s Cuyahoga River, made famous by a 1969 National Geographic story describing a fire, was polluted since the 1860s, catching fire nine times between 1868 and 1952.

Data for the entire U.S. provides a comprehensive account. In 1962, the first year of national measurement, only about 58 percent of U.S. rivers were deemed fishable, compared to 85 percent in recent years. On one hand, the mid-20th-century pollution reflects that period’s prioritization of manufacturing jobs, wages, and economic growth over environmental quality, whereas the later improvement reflects changing priorities. This explanation is consistent with economic research indicating that demand for environmental quality tends to increase with income across countries, time periods, and cultures. In 1960, U.S. real income per capita was only one-quarter of what it is today. This implies the mid-century emphasis on economic growth was a choice, rather than simply a problem.

On the other hand, the rapid rise in pollution also reflects breakdowns in America’s rule of law. Our common law did not keep pace in assigning liability, whether to businesses that discharged, or to households who wished to be free of discharge. Uncertain liability meant property rights to water quality remained unclear for decades. The absence of clear property rights made it difficult for private parties to bargain for pollution reductions in market exchanges.

Unclear liability stirred demand for local water regulations, which states implemented during the 1940s, 1950s and 1960s, before the federal mandates of the 1970s. Early adopters of water pollution policies included manufacturing states like Pennsylvania, Indiana, Michigan, and Ohio while late adopters like New Mexico, Arizona, and Nevada had less manufacturing and fewer waterways to protect. Thanks to federalism, states were effectively governing water prior to the 1972 Clean Water Act, which explains why water quality was already trending in a positive direction: America’s percentage of fishable rivers improved from about 58 to 72 percent from 1962 to 1972.



FROM CHOKING SMOG TO CLEAN AIR

The story of air pollution is similar. Pollution tended to be worst in manufacturing hubs like Cleveland, Pittsburgh, and Detroit where factories relied on burning soft bituminous coal, which released sulfur dioxide, carbon monoxide, and soot. In other cities, like Los Angeles, vehicle exhaust from engines lacking catalytic converters contributed to dense smog in basins where air inversions were common. A firefighter outside of Pittsburgh explained a 1948 weather inversion as creating air thick enough to “chew” while an L.A. resident said that stinging smog during the 1950s felt like “the entire world was peeling onions.”

Sulfur dioxide emissions increased from 15 million to over 30 million tons annually by the late 1960s. Today, they measure under two million. (See Figure 2.) Fortunately, like burning rivers, choking smog is in the past.

Explanations for improved air quality that point to federal mandates have merit—the 1970 Clean Air Act’s standards that led automakers to install catalytic converters in new vehicles was certainly effective—but are incomplete. As with water, they overlook progress made prior to 1970 from state regulations, and they ignore market forces occurring since then. States with large populations like New York, California, Florida, Pennsylvania, and Illinois were already regulating air quality by the early 1960s, thanks to the constitutional principle of federalism.

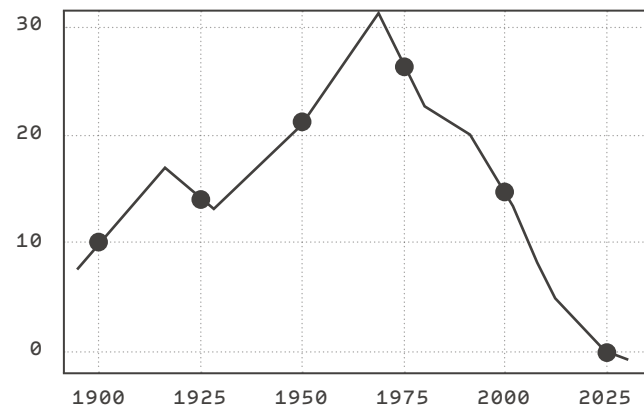
Even within the federal regulations of the 1970s, there remained important room for the constitutional principles of property rights and free enterprise to operate. The evolution of the Clean Air Act is a case in point. Due to lobbying pressure from industry, the act initially used

command-and-control mandates to force new plants to install a particular abatement technology—smokestack scrubbers—rather than allowing producers to reduce pollution through cheaper alternatives, such as burning low-sulfur coal. The perverse result was that existing plants had incentive to delay upgrading to burn cleaner coal, and the effect was worse air quality in some places.

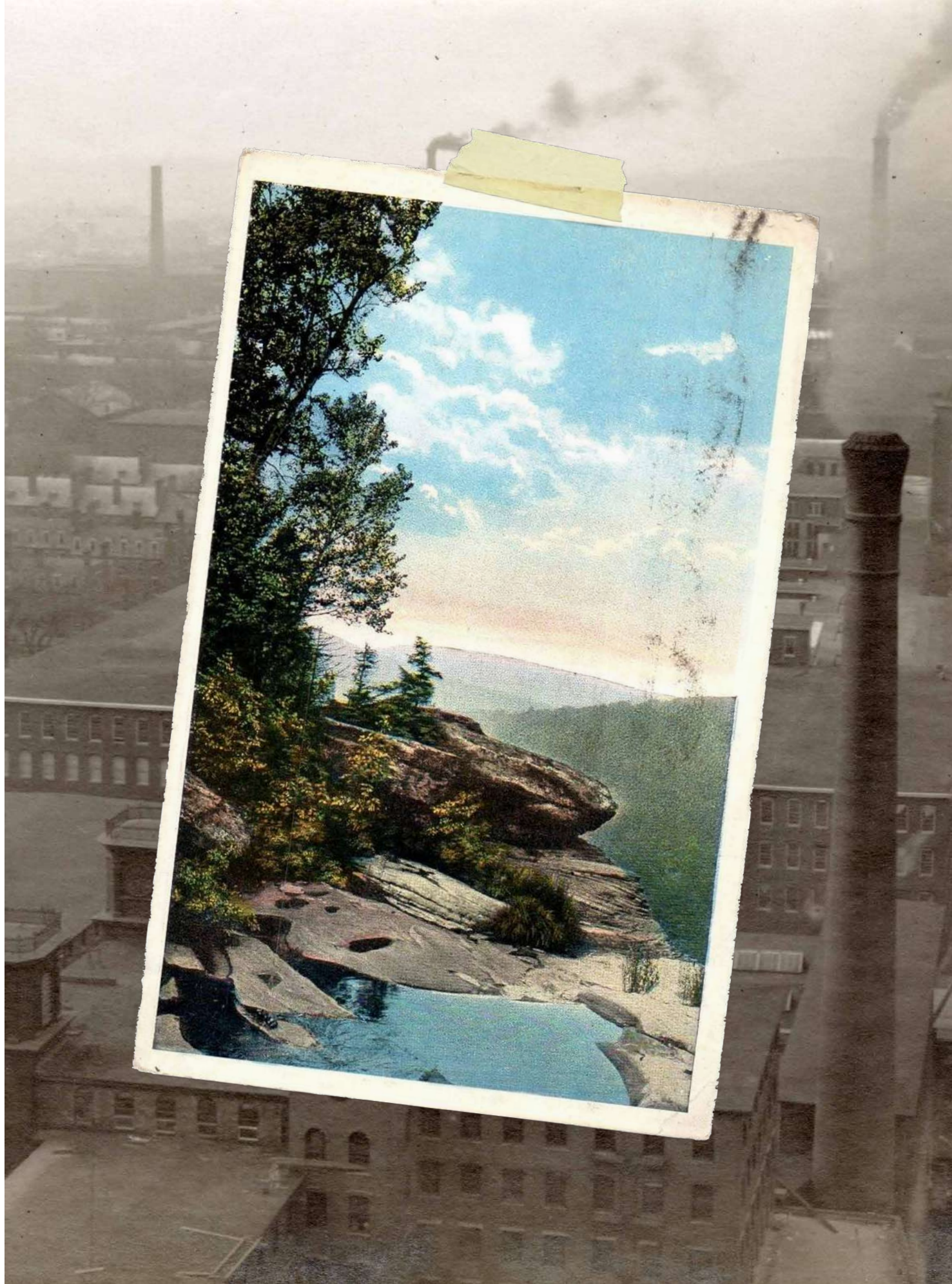
Amendments to the law in 1990, however, introduced significant market incentives, implementing emission standards rather than specific technology requirements and creating a cap-and-trade system. By giving power plants the flexibility to sell emission-reduction credits, the law incentivized companies to not only meet but exceed standards by harnessing cheaper, innovative technologies.

Market-driven technological advances also further reduced pollution within U.S. sectors traditionally labeled “dirty,” like fossil-fuel production. The fracking revolution is a literal ground-breaking example. By enabling U.S. power plants to swap coal for cleaner natural gas, the shift has improved air quality enough to generate billions of dollars in health benefits and save thousands of lives since 2005. I suspect this innovation flourished in America, rather than abroad, due to our unique system of private property rights to underground resources; because landowners—rather than distant bureaucrats—collect production royalties, they had a financial incentive to embrace the technology.

FIGURE 2: U.S. SULFUR DIOXIDE EMISSIONS (MILLION METRIC TONS, ESTIMATED)



Sources: Post-1970: U.S. Environmental Protection Agency. (2024). National Emissions Inventory (NEI) Air Pollutant Emissions Trends Data (1970 - 2024). Office of Air Quality Planning and Standards. Pre-1970: U.S. Environmental Protection Agency. (1998). National Air Pollutant Emission Trends, 1900–1997. EPA-454/R-98-007.



THE ENDURING CONSTITUTIONAL TOOLKIT

The collapses of American wildlife populations, water purity, and air quality were partly choices of the times—to trade off conservation and environmental quality for economic growth—and partly results of open-access regimes. In each case, the recipe for recovery involved tablespoons of federal mandates and cups of constitutional principles: federalism, improved property rights, and market incentives. Today, we should celebrate our progress but should not lose sight of the principles that will remain critical for addressing environmental trade-offs ahead.

As America marks its 250th year, wildlife conservation offers a striking example of what that looks like. Once nearly extinct, white-tailed deer now number 35 million—and overabundance has become its own crisis. Deer-vehicle collisions account for roughly 2 million accidents, 30,000 injuries, and 200 deaths each year. Two potential solutions are consistent with American constitutional principles. First, rescinding the 19th-century ban on commercial venison markets could harness consumer demand to reduce herds while providing a lean, affordable protein at a time when beef prices have risen over twice the rate of inflation since 2000. Second, based on my research with colleagues, wolf reintroduction in suitable habitat could save the economy \$6 billion a year in vehicle-collision losses alone. Both decisions would be best made at the state level, in keeping with the federalism and respect for landowner property rights that have always defined American conservation.

The lesson of 250 years is that America’s environmental successes have rarely come from Washington, D.C., alone. They have come from a mix of state experimentation, private incentives, and public enforcement. That combination—messy, contested, and distinctly American—remains our most powerful conservation approach.



Dominic (Nick) Parker is a PERC senior fellow and the Anderson-Bascom professor of applied economics at the University of Wisconsin-Madison. Nick is also the Ilene and Morton Harris senior fellow at Stanford’s Hoover Institution and a regular faculty lecturer for the Ronald Coase Institute.



AMERICA AT 250



From Race to Rights

By the late 1980s, Alaska's halibut fishery had become a race. Regulators limited the total amount of fish that could be caught each year, but no fisherman was guaranteed a share. Once the limit was reached, the fishery closed. As more fishermen entered the fishery, the race intensified. The season shrank from months to just days: from over four months in the early 1980s to two 24-hour openings by 1992.

The rush had consequences. Massive gluts drove down prices, large volumes of fish were frozen and warehoused, and fishermen took greater risks. Between January 1991 and September 1992, 60 fishermen lost their lives in fishing-related accidents.

In response, individual fishing quotas—a type of catch share—were introduced in 1995. Under this system, fishermen receive a secure share of the total allowable catch and can harvest their fish when conditions are favorable rather than racing against competitors. Today, catch share programs are used in several major U.S. fisheries, including those for halibut, sablefish, pollock, and Gulf of Mexico red snapper.

Studies of catch shares have found that they result in longer seasons, higher revenues, fewer discarded fish, and more stable employment. The Alaska halibut program remains one of the clearest examples of how property rights can transform a fishery. What had been a frantic two-day race became a months-long season with better prices, higher-quality fish, and fewer fishermen lost at sea.

— **Sara Sutherland**

PERC Senior Research Fellow and External
Research Coordinator

From Planting Trees to Protecting Them

Matt Reimer spent time replanting Canada's forests. Now he's asking whether wildfire policy is protecting landowners on the front lines

PERC 2026 Lone Mountain Fellow Matt Reimer spent his summers replanting trees across the Canadian wilderness and his winters skiing and traveling abroad until he couldn't shake one question: Why are some places environmentally intact despite being close to cities and municipalities, while others are completely devastated?

This question led Matt to pursue a degree in economics at the University of Calgary. He discovered that economics could explain what uniform standards alone could not—private incentives and market-based solutions matter. Once economics clicked, Matt couldn't get enough. He went on to pursue a Ph.D. at UC Davis, where his focus on fisheries management led to his first encounter with PERC.

Matt attended a PERC workshop in Bozeman on catch share fisheries in 2010. He interacted with PERC research fellows and staff and found an organization that shared his conviction that markets can meet environmental objectives. That experience stayed with him. And in more recent years, working alongside PERC research fellows Eric Edwards and Sara Sutherland as faculty colleagues at UC Davis, he has kept that philosophy close at hand.

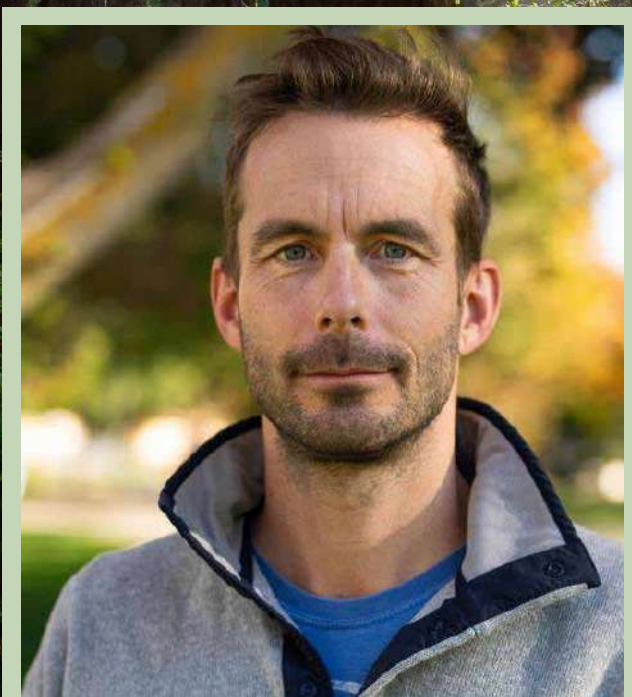
That proximity to PERC's ideas has shaped the questions Matt brings to his research and to his students. Since returning to his alma mater, Matt has collaborated with students on a diverse range of environmental issues such as wildfire suppression costs, wildfire damage mitigation,

and land and ocean use policy. This work brought him back to the questions that first stirred his curiosity—and this summer it brings him to PERC.

As a Lone Mountain Fellow, Matt continues his study of wildfire mitigation on private landscapes. Alongside former PERC graduate fellow and University of Alberta scholar Frederik Strabo, Matt seeks to determine whether policies that incentivize homeowners to invest in clearing brush and creating firebreaks actually make sense. Defensible space on any given property is limited by its size—and as Matt points out, "the effectiveness depends on what all your neighbors decide to do. It's just not clear that from a landowner's perspective, defensible space pays off." Yet states like California are implementing policies that mandate defensible space and link fire insurance premiums to these investments, even without evidence they are worthwhile relative to other wildfire-damage mitigation investments, such as large-scale fuel treatments on public land.

This summer Matt is looking to explore these ideas alongside PERC researchers who have been asking and working on similar questions for years. Getting incentives right is good for landowners, forests, and communities that depend on them.

Learn more about PERC Fellowships at [PERC.ORG/FELLOWS](https://perc.org/fellows)





AMERICA AT 250 ★

By the Hunters, For the Birds

Since 1934, American waterfowl hunters have purchased a stamp before heading to the field. Each year, the stamp features a new original painting of a marshy scene, selected through a juried competition, making it one of the longest-running wildlife art series in American history.

The proceeds from stamp sales flow directly into wetland conservation. To date, the federal program has raised more than \$1.3 billion and conserved more than six million acres of habitat across North American flyways. This funding has led to an increase in protected wetland habitats, stable waterfowl numbers, and benefits to a multitude of other species.

The program's design is deceptively simple: The people who care most about waterfowl bear the cost of conserving them. And hunters are happy to contribute. Beyond the enduring conservation benefit, 90 years of hunters buying stamps have also produced one of the great bodies of American wildlife art.

— **Travis Brammer**
PERC Director of Conservation





America's Landscape of Liberty

How America's wild places shaped
our national character—and why
conserving them still matters

BY ADAM NICHOLSON

As America approaches its 250th anniversary, it's natural to reflect on our nation's founding through its political ideals: individual liberty and equality, constitutional government, and individual rights. But these ideals did not emerge in the abstract, nor were they implemented in a vacuum. They were shaped in a diversity of landscapes, quite unlike the terrain of the British Isles from which our founders' forebears came. The colonists who participated in the American Revolution and attended the Continental Congress grew up on a vast continent of forests, rivers, mountains, and grasslands teeming with wildlife. It was simultaneously Edenic and treacherous, generous and unforgiving.

Before Americans were codifying freedom as a political principle in the Constitution, they lived it in

practice on an immense and often unrelenting landscape. Land had to be cleared and worked. Rivers had to be navigated. Wildlife and water were sources of sustenance, risk, and discovery. These conditions cultivated habits of initiative, resilience, and self-direction. They also exposed difficult questions that the young nation could not immediately resolve: who would enjoy the opportunities afforded by this vast continent, who would bear the costs of its settlement, and what would freedom ultimately require? The American landscape was not merely the setting for the nation's ideals—it was where many of its deepest tensions and contradictions first became impossible to ignore.

When Alexis de Tocqueville traveled through the United States in the 1830s, he recognized how this land instilled

a restless spirit. In *Democracy in America*, he observed: “The Americans live in a land of wonders, in which everything is in constant motion ... No natural boundary seems to be set to the efforts of man ... the forest recedes and the wilderness falls back before him.”

But Tocqueville's deeper insight was that the landscape itself had helped shape Americans into a people defined by energy, ambition, and a belief in self-direction. In the United States, he wrote, “the spirit of enterprise is carried to a degree which has no parallel.” The American landscape did not simply provide resources for the republic—it helped form the kind of hardworking, ambitious citizens the republic required.

Forged by the Frontier

America's founders and early citizens realized that the abundant yet harsh land would shape their new nation. They saw the opportunity that the land offered to those willing to work, explore, and settle it.

In an essay written in 1751, over a generation before the American Revolution, Benjamin Franklin described the plentifulness: “So vast is the Territory of North America, that it will require many Ages to settle it fully ... Europe is generally full settled ... but in America there is still room enough.” Thomas Jefferson made a similar observation, adding to it his belief that working this abundant land could be a path toward virtue. In his *Notes on the State of Virginia*, he explained: “In Europe the lands are either cultivated, or locked up against the cultivator ... But we have an immensity of land ... Those who labour in the earth are the chosen people of God, if ever he had a chosen people, whose breasts he has made his peculiar deposit for substantial and genuine virtue.” One doesn't have to accept Jefferson's full agrarian ideal to acknowledge that land stewardship would form a unique type of citizen.

Farming was just one way that Americans were shaped by the land. George Washington started as a surveyor, crisscrossing Virginia's Blue Ridge Mountains and Shenandoah Valley, the Ohio River Valley, and parts of what are now Pennsylvania and West Virginia. He spent over a decade navigating, observing, measuring, and fighting in this rugged terrain. These experiences cultivated endurance, initiative, and ambition that would later define both himself and the republic he helped build. For Washington, the untamed western lands he explored were not merely territory to govern; they were the source of the opportunity and independence that distinguished America from Europe.

With these experiences, Washington saw that others would benefit from similar encounters with wilderness. “The extensive and fertile regions of the West,” he wrote in a 1783 letter, “will yield a most happy asylum to those who, from distress or necessity, may be driven from the more crowded parts of the Union.” And it wasn't long before the country would heed Washington's call.

Few examples better captured the relationship between wilderness and the American character than the expedition led by Meriwether Lewis and William Clark. Sent westward only a generation after independence, it embodied a young republic convinced that liberty meant not only self-government, but also the freedom to venture into unknown places and possibilities. Moving by river and flanked by immense forests, plains, and mountains, the expedition encountered landscapes and wildlife that stretched the imagination of the early republic.

Lewis and Clark's journals documented enormous herds of bison and elk, countless grizzlies, salmon-filled rivers, and seemingly endless horizons. Their journals reinforced the distinctly American belief that opportunity lay beyond established boundaries—if Americans were willing to work for it.

As Americans moved westward, freedom was being learned outdoors as it was being articulated in fledgling political institutions. Hunting, fishing, farming, and frontier-living generally demanded skill, observation, patience, and self-reliance. Meanwhile,

continued conflict with Native Americans and the expansion of slavery tested the founders' claims of liberty and equality.

Thriving on this land required initiative and competence, but it also demanded an enduring relationship with land, water, and wildlife.

These experiences shaped a national character oriented toward exploration, resilience, and self-direction. Liberty was not merely an abstract right; it was an experience forged in daily encounters on a vast and often unforgiving landscape.

Stewards of Liberty

The challenge facing the United States today is not the same one that confronted settlers, surveyors, or explorers two centuries ago. Early Americans struggled to survive and build a civilization. Modern Americans face a different danger: losing access to the kinds of open, inspiring landscapes that once shaped our national character in the first place, and in which our predecessors wrestled with the full implications of freedom.

That loss is not merely physical; it is civic and cultural. Many of the forests Lewis and Clark traversed, the rivers that sustained frontier communities, and the abundant wildlife that once defined the American experience are under pressure. Diminished wildlife populations, degraded watersheds, overgrown forests, and strained national parks make it harder for Americans to experience the wonder, challenge, and responsibility that wild places uniquely cultivate.

These pressures persist despite decades of expanding conservation efforts. Too often, those efforts have sought to separate people from nature, rather than recognize and embrace the reality that the people who live, work, hunt, fish, ranch, farm, and recreate are some of our country's preeminent conservationists. In trying to protect nature from people, many policies have instead excluded people from the experiences that foster stewardship in the first place. But nature is not static, and people have always been a part of it, shaping it for good or ill. A more robust conception of conservation recognizes that people can damage or improve the ecosystems they inhabit, but they cannot be separated from them.

Forests grow excessively dense and then burn catastrophically because active management is discouraged. Rivers and reservoirs become sources

of conflict rather than stewarded resources due to a lack of clear and transferable rights. At-risk species stagnate thanks in part to policies that treat landowners as adversaries rather than assets. National parks deteriorate because often their budgets cater more to politics than to visitors—the very people whose enjoyment of these incredible destinations can inspire future generations of conservationists.

It doesn't have to be this way. Conservation succeeds when people see themselves not as adversaries of nature, but as participants in its flourishing. The same landscapes that cultivated resilience, initiative, humility, and exploration in earlier generations can still shape Americans today—if they remain accessible and ecologically rich.

As the United States enters its next 250 years, conserving our land, water, and wildlife means more than protecting scenery or biodiversity. It includes preserving the experiences that help form a free and self-governing people. And it requires a conservation ethos grounded not in mere preservation, but in stewardship: one that aligns incentives, rewards responsible management, empowers local knowledge, and recognizes that human prosperity and ecological health are often mutually reinforcing rather than in opposition.

America's landscapes helped shape the nation's understanding of opportunity, exploration, and liberty. The task now is to ensure that future generations can still encounter those same lessons in forests, rivers, mountains, and grasslands that remain vibrant enough to teach them.



Adam Nicholson is the director of strategic donor partnerships at PERC.

A LEGACY OF CONSERVATION

For over 40 years, PERC has worked to improve environmental outcomes using markets and voluntary incentives to ensure our conservation heritage is protected for wildlife, for our lands and waterways, and for the people who cherish them.

To learn more about the PERC Legacy Society or share your commitment, please contact Rupert Munro at legacy@perc.org or visit perc.org/legacy



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